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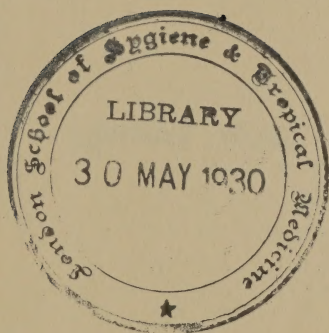
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# JOURNAL

OF THE

# STATISTICAL SOCIETY.

(Founded 1834.)

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VOL. XLIII.—YEAR 1880.

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# CONTENTS.

VOL. XLIII.—YEAR 1880.

*March, 1880.*

	PAGE
Is the Value of Money Rising in England and throughout the World? With Remarks on the Effect of the Fluctuating Conditions of Trade upon the Value of Money. By R. H. PATTERSON, Esq. ....	1—26
Discussion on Mr. Patterson's Paper .....	27—34
The Strikes of the Past Ten Years. By GEORGE PHILLIPS BEVAN, Esq., F.G.S. ....	35—54
Discussion on Mr. Bevan's Paper .....	55—64
On Certain Changes in the English Rates of Mortality. By THOMAS A. WELTON, Esq. ....	65—83
Discussion on Mr. Welton's Paper .....	84—94

## MISCELLANEA :—

I.—Financial and Commercial History of 1879 .....	95—109
II.—Fires in the Metropolis during 1879, and the Fire Brigade .....	109—114
III.—English Literature in 1879 .....	114—116
IV.—German Literature of 1878 and 1879 .....	116, 117
V.—Emigration and Immigration in the Year 1879.....	117—123
VI.—Rates of Life Insurance Premiums .....	123—134
VII.—Report of a Committee with reference to the Census of 1881 .....	134—139
VIII.—Notes on Economical and Statistical Works .....	139—143
IX.—Notes on some of the Additions to the Library.....	143—147
X.—Additions to the Library during the Quarter.....	147—158

## PERIODICAL RETURNS:—

Registrar-General's Report, and Meteorological Table for England and Wales for the Year ending 1879.—The same for Scotland.—Births, Deaths, and Marriages of the United Kingdom.—Foreign and Colonial Produce Exported, 1878-74.—Trade of the United Kingdom, 1879-78-77.—Imports and Exports.—Shipping.—Gold and Silver Bullion and Specie. Average Prices of Corn in England and Wales.—Bank of England Returns.—Revenue Returns.—The London Clearances and Country Bank (Note) Circulation in United Kingdom.—Foreign Exchanges .....	159—182
--	---------

*June, 1880.*

On the Education and Training of the Children of the Poor. By FREDERIC J. MOUAT, M.D., F.R.C.S. ....	183—243
Discussion on Dr. Mouat's Paper .....	244—250
Vital Statistics of Cavalry Horses. By SURGEON-GENERAL T. GRAHAM BALFOUR, M.D., F.R.S. ....	251—271
Discussion on Surgeon-General Balfour's Paper .....	271—274
Ten Years' Statistics of British Agriculture, 1870-79. By CAPTAIN PATRICK GEORGE CRAIGIE, Secretary of the Central Chamber of Agriculture .....	275—312
On the Home Produce, Imports, Consumption, and Price of Wheat, over the Harvest-Years 1852-53 to 1879-80, inclusive. By J. B. LAWES, LL.D., F.R.S., F.C.S., and J. H. GILBERT, PH.D., F.R.S., F.C.S. ....	313—331
Discussion on the two Papers by Captain Craigie, and by Messrs. Lawes and Gilbert .....	332—340

## MISCELLANEA:—

I.—General Results of the Commercial and Financial History of the Year 1879 .....	341—355
II.—The Movement of the Population in Russia during the Four Years 1867-70 .....	356—364
III.—Lloyd's Statistics of Marine Casualties for the Year 1879 .....	365—379
IV.—An Iron Trade Chart for the past Fifty Years .....	380, 381
V.—Notes on Economical and Statistical Works .....	382—388
VI.—Notes on some of the Additions to the Library .....	388—393
VII.—A Quarterly List of the Additions to the Library .....	393—404

*September, 1880.*

	PAGE
Report of the Council to the Forty-Sixth Anniversary Meeting of the Statistical Society .....	405—416
Proceedings of the Forty-Sixth Anniversary Meeting .....	417—422
A Survey of Indictable and Summary Jurisdiction Offences in England and Wales, from 1857 to 1876, in Quinquennial Periods, and in 1877 and 1878. By PROFESSOR LEONE LEVI, F.S.A., LL.D., &c. ....	423—456
Discussion on Professor Leone Levi's Paper.....	456—461
On the Increase of Population in England and Wales. By R. PRICE WILLIAMS, M. INST. C.E. ....	462—496
Discussion on Mr. R. Price Williams's Paper .....	497—508
Mortality in Remote Corners of the World. By HARALD WESTERGAARD, of Copenhagen .....	509—520

MISCELLANEA:—

I.—Ten Years' Railway Statistics.....	521—531
II.—Notes on Economical and Statistical Works .....	531—547
III.—Notes on some Additions to the Library .....	547, 548
IV.—List of Additions to the Library .....	548—558

*December, 1880.*

The Inaugural Address of JAMES CAIRD, Esq., C.B., F.R.S., PRESIDENT of the Statistical Society, delivered on Tuesday, the 16th of November, 1880 .....	559—572
Proceedings on the 16th November, 1880 .....	572
Note on the Tenth Census of the United States of America. By F. J. MOUAT, M.D., F.R.C.S., Vice-President and Foreign Secretary .....	573—602
Discussion on Dr. Mouat's Paper .....	602—604



“The Oriental Plague in its Social, Economical, Political, and “International Relations, special Reference being made to “the Labours of John Howard on the subject.” A Prize Essay. By HENRY PERCY POTTER, Esq., F.R.C.S., to whom the Howard Medal of 1880 was awarded .....	605—642
--	---------

## MISCELLANEA:—

I.—Agricultural Returns for the Year 1880 .....	643—664
II.—The Corn Crops of 1880.....	664—670
III.—Ten Years’ Results of the London School Board .....	670—682
IV.—The Annual Local Taxation Returns of 1878-79 .....	683—687
V.—Ten Years’ Telegraphy .....	687—690
VI.—The Population of the Earth .....	690—697
VII.—Statistics of Australasian Colonies .....	698, 699
VIII.—Agricultural Distress and Bills of Sale .....	700—705
IX.—Notes on Economical and Statistical Works .....	705—709
X.—Notes on some Additions to the Library.....	709—711
XI.—List of Additions to the Library .....	711—720
INDEX to vol. xliii (1880).....	721—743

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## JOURNAL OF THE STATISTICAL SOCIETY,

MARCH, 1880.

*Is the VALUE of MONEY RISING in ENGLAND and throughout the WORLD? With REMARKS on the EFFECT of the FLUCTUATING CONDITIONS of TRADE upon the VALUE of MONEY. By R. H. PATTERSON, ESQ.*

[Read before the Statistical Society, 16th December, 1879.]

## CONTENTS :

	PAGE		PAGE
I.—Money and Prices in Great Britain .....	3	V.—Production and Employment of the Precious Metals .....	13
II.—Money and Prices in India .	5	VI.—Summary and Conclusion	16
III.—The Produce of the Mines..	9	VII.—The Subject at Home.....	18
IV.—Effects of the State of Trade on the Value of Money ....	9	VIII.—Recent Growth of the Note Circulation.....	19
		IX.—Rise of the Bank Rate ....	20

IN more than one part of the “Wealth of Nations,” Adam Smith refers to the prevalent opinion in his time, that the value of the precious metals was still falling; whereas he explicitly states as his own opinion, or rather as a fact demonstrated by the state of prices, that for three-quarters of a century previous—viz., from the closing years of the seventeenth century down to the time when he wrote—there had been a slight but distinctly perceptible rise in the value of money. The popular opinion thus referred to was perfectly natural. Money had fallen immensely in value during the century and a half subsequent to the discovery of America with its mines of the precious metals; and as the produce of the mines in the eighteenth century was very much larger than it had ever been before, it was only natural to believe that the fall in the value of the precious metals was still in progress. Ordinary observers overlooked the fact, pointed out by Adam Smith, that the requirements for money had contemporaneously increased vastly; indeed to such an extent that the increased produce of the mines was inadequate to fully meet the increased requirements for it.

An analogous or parallel state of public opinion has prevailed in connection with the peerlessly rich new mines of America and

Australia. In 1873—which is our starting-point in this inquiry—prices were very high, and people were still believing in, or expecting a continuous fall in the value of money. Although the gold-mines had declined from their maximum production, little attention was given to that circumstance; moreover, the annual yield of gold was still more than double what it was in 1848; and also, the comparative falling off in the produce of gold was compensated in amount by the increased supply of silver from the new Nevada mines. This was the state of matters in 1873.

Soon afterwards, a great fall began in the value of silver compared with gold; and as no one then thought that gold was becoming scarce and rising in value, the change in the value of silver appeared to be a veritable depreciation of that metal—a fall not merely relatively to gold, but also to labour and commodities in general. The House of Commons, when appointing the Select Committee of 1876, adopted the prevalent opinion; and the Committee in their Report proceeded upon the same view of the matter, although some of the evidence then adduced pointed to a different conclusion. On the other hand, the Commission simultaneously appointed by the Congress of the United States, reported in the clearest and most confident terms that there had been no fall in the value of silver, except as compared with gold, and that the value of gold had risen: in their own words, “Since 1873, the purchasing power of gold has risen in all countries, and the purchasing power of silver has fallen in none.” The report of the American Commission failed to attract attention in this country: moreover, as the United States are interested in upholding the value of silver, for the sake of the splendid Nevada mines, the opinion of the American Commission was open to the suspicion that “the wish was father to the thought.”

Recently, however, it has become acknowledged in this country that the view taken by the American Commission is not altogether baseless, and that the “depreciation” of silver may really be due, to some extent at least, to a rise in the value of gold. To determine correctly any substantial change in the value of the precious metals compared with other commodities, is one of the most difficult of inquiries. It can only be done by reviewing Prices over a long period of years, and by taking into account a variety of causes of a most complicated kind, operating upon the production and supply of commodities, as well as the fluctuations in the condition or “spirit” of trade. It is only in part that I here attempt such a task: I shall hardly go beyond the broad facts of the last half-dozen years. I shall venture, however, to lay before you some considerations relative to the important questions, Whether the cause of the altered value of money is to be found in the Supply or in the



Demand—whether the rise is owing to the diminished yield of the gold-mines, or to the depression of trade,—and how far the rise is likely to be permanent. But the first point is, How does the value of money stand, both in this country and in India, or throughout the world at large; and in what degree have gold and silver respectively been affected in value, both towards general commodities and towards one another?

[In this opening portion of the Paper, 1872-73 is the most suitable period to start from, because that was prior to the recent change in the relative value of gold and silver; so that, by considering the subsequent events, we can see what have been the causes of that change, and the true character of the so-called “depreciation” of silver. On the other hand, the year 1873 was almost as exceptional as regards its high prices as the present year is for low prices; and in the portion of this Paper which relates to the value of Money generally, it will be seen that I do not rely in any way upon the contrast of prices exhibited in those particular years.]

#### I.—*Money and Prices in Great Britain.*

To begin with our own country and currency. That prices have fallen—*i.e.*, that money has risen in value—in this country since 1873 is a fact too obvious to be questioned; but, as will become apparent in the sequel, it is highly important to observe what is the *extent* to which this change has occurred. A change in the value of money must be ascertained, primarily, by reference to the state of prices—in other words, the value of general commodities as measured in money.

There are several Tables of Prices available to determine this point, for all of which the community is indebted to members of this Society. There is, first, the table regularly compiled for, and published for many years past by the “Economist,” and which includes all the chief articles of merchandise. There is also a table compiled by Mr. Arthur Ellis, editor of the “Statist,” from 1869 to the first quarter of 1878, which gives the prices of the raw materials of British manufactures, and which may be said to represent our Imports; and thirdly, there is a table compiled during the present year by Mr. Giffen, for the Board of Trade, which relates to our Exports—to the articles of merchandise produced in and exported from this country. Taking these two latter tables together, they pretty nearly correspond in character to the single “Economist” table. The “Economist” table, however, is the only one which has been brought down to the beginning of the present year; and the said table shows a fall of prices since 1873 equal to  $24\frac{1}{2}$  per cent. Thus, be the cause what it may, assuming the

correctness of this carefully compiled table, the purchasing power of our British currency—in other words, of Gold—has risen fully 24 per cent. since 1873.

Next, let us see how Silver stands in this country, and in Europe and America generally. The gold-price of an ounce of silver during the twenty years ending with 1850 (when the produce of the new gold-mines first began to reach the markets of the world) averaged as near as may be  $59\frac{1}{2}d.$ ; during the next twenty years it stood above this old level, in some years being  $62d.$ ; but it returned to its old level in 1872, and throughout 1873 the average price of the ounce of silver was  $59\frac{1}{4}d.$  [I may remark in passing that although, in common with others, I regard the rise in the price of silver as due to the increased production of gold, I do so only partially; for I believe that an equal factor in the case was the extraordinary demand for silver for the East.\*] In 1876, under the influence of Panic, the price of silver fell to 4s. the ounce. Since that time, the value of silver has stood at what appears to be its normal or natural level under the new circumstances (namely, the widespread demonetisation of that metal, &c.),—the present price per ounce being about  $51\frac{1}{2}d.$ :† a fall of  $8d.$  per ounce, or about  $13\frac{1}{2}$  per cent., compared with its gold-price in 1872, in which year the gold-price of silver was exactly the same as used to prevail previous to 1850.

Taking these facts as they stand, and putting them together, they go to show that the common idea, and the one universally held in this country in 1876—namely, that there has been an absolute depreciation of silver—is wrong. The *fall* in the value of silver compared to gold is 11 per cent. *less than the rise in the value of gold compared with general commodities*. In other words, the purchasing power of silver, or its value in general commodities, has not fallen at all. On the contrary, in this country it has risen (judging from the “Economist’s” Table of Prices) 11 per cent.;

\* Silver, which stood at its old average price of  $59\frac{1}{2}d.$  in 1848, thereafter began to rise, and in 1852-55 it stood at  $61\frac{1}{2}d.$  As this was before the setting in of the great expansion of the trade with India, the rise must be attributed to the great increase in the supply of gold. But thereafter, although the gold mines had reached their maximum of production, the price of silver continued to rise, until it stood at  $62\frac{1}{16}d.$  in 1859; and it remained above its old price ( $59\frac{1}{2}d.$ ) until after 1872. From these facts I infer that the latter part of the rise in the price of silver (viz., from  $61\frac{1}{2}d.$  to  $62\frac{1}{16}d.$ ) was owing to the great demand and drain of silver to the East which commenced in 1856, or a little earlier, and that after that year this great drain for the East was the sole cause of the enhanced price of silver.

† These figures represent the state of matters in September last, when this paper was written. Since then, the value of silver has somewhat risen; but I have not thought it necessary to alter the figures, because the change is slight, and also because, even were it greater than it is, it would not affect the argument or exposition.

while gold has risen fully 13 per cent. *more*,—or in all  $24\frac{1}{2}$  per cent. at the beginning of the present year.

## II.—*Money and Prices in India.*

Such is the present value of the two metals in this country, where gold is the standard-money, and more or less in other countries of the Western world. Let us next see how the case stands in the East, where silver constitutes the whole currency and sole legal measure of value. Unfortunately there are no scientifically prepared tables of prices for India similar to those which I have quoted for our own country. Before referring to such data as we possess, let me first look at the case from a general point of view. The mass of silver poured into India during the twenty years subsequent to 1855 has been literally prodigious; the *nett addition* made to the stock of silver in India during the period having been about 160 millions sterling. Nevertheless, in the opinion of the highest authorities, India in 1876 was still inadequately supplied with currency. The new supply of specie did not stagnate and become plethoric in the towns and industrial centres, but was drained off to provide currency in the interior of the country—in the districts where Barter had previously existed, but where both Labour and Production were becoming developed by the large influx of British capital—by the new railways, and by the quickening of industry which so remarkably characterised those twenty years. More currency was needed in India owing to more Employment and higher wages, and also by the gradual displacement of Barter; while more silver, whether in coin or in ornaments, was needed to *store* the small but increasing reserve-wealth of the peasantry and shopkeepers. In 1863 the Governor of Bombay wrote as follows:—"Great quantities of silver are absorbed in remote parts of the country, and go to furnish a currency where no general medium of exchange existed before; rupees are now to be found in hundreds of small bazaars where all Trade used to be conducted in barter." And in 1876, when giving evidence before the Select Committee on the depreciation of silver, Colonel Hyde, director of the Calcutta Mint, spoke confidently as to the insufficient amount of currency in India, and the capacity of that country to absorb more silver into circulation,—adding that "the progress of the currency in India will be very slow, but I think it will be sure." More silver is needed to displace barter in the outlying districts, as well as to meet the growing requirements of trade and of Government and personal expenditure in the more advanced districts where silver-money is already in use.

Thus, vast as has been the quantity of silver poured into India,



there are general and *à priori* grounds for doubting, whether there has, or could have been, any redundancy and fall in the value of the silver currency of that country. But let us see what is the evidence of Prices upon this point. In 1876 Mr. R. W. Crawford stated before the Silver Committee that "Prices have fallen very much in India;" and he referred to a staple quality of cotton which had fallen since 1872-3 from  $6\frac{1}{2}d.$  the pound to  $4\frac{1}{2}d.$ —a fall of one-third, or 33 per cent.—and to saltpetre, which had fallen from 30s. the cwt. to barely 17s., a fall of fully 43 per cent. Cotton and saltpetre are staple exports of India, and doubtless are as good single commodities as can be quoted in a question of prices,—especially since rice and grain have been abnormally affected in price of late years by the severe Famines; nevertheless, important commercial articles as cotton and saltpetre are, taken alone they are quite unreliable as indications of a general change of prices. Subsequently to 1876, the Government of India has published a List of Prices of a tolerably complete character; but they are mere lists, not scientifically treated statistics like the Tables which have emanated from members of this Society, and which tell their own tale on the face of them. Perhaps Mr. Giffen or Mr. Ellis, or some other member of this Society—perhaps Mr. Newmarch himself, our greatest authority on the subject—may have analysed those Indian lists of prices, and will give the results in a better manner than I am prepared to do. As is well known, there may be a change in the prices of one set of commodities—say in the exports—while a different state of matters prevails in another class—say of domestic production and consumption. The Government of India, referring to those lists of prices and also to its general information, simply maintains that there has been *no rise of prices* in India, and that the rupee still buys as much goods or labour as before; for this is sufficient for the purpose which the Government had in view in its Memorandum, viz., to show that there has been no absolute depreciation of silver, but merely in relation to gold. The Bombay Chamber of Commerce states the same fact. In 1877, when the price of silver was lower than now, the Bombay Chamber of Commerce reported that "the purchasing power of the rupee in respect of ordinary articles of consumption, such as the food of the people, remains undiminished."—Parliamentary Paper, 11th August, 1877.

But I think somewhat more than this may be said. The general opinion or knowledge of merchants connected with the Indian trade certainly seems to be that, on the whole, prices have fallen in India since 1873, about which time the change began in the relative value of the two precious metals. I think it will be acknowledged that if silver has risen in purchasing power in a country like England,

where silver is *not* Money, *cæteris paribus*, silver will rise in value in a country where it *is* Money, and also the sole currency,—especially in a country where, as in India, that currency is to some extent inadequate. This, however, is assuming that the conditions of the two countries in other respects are similar, which cannot be said correctly of India and England at present. Undoubtedly both of them are alike in this important respect, that Trade is not prospering as it used to do; but in India the commercial depression has not been so severe as in England. Indeed, even if the *commercial* depression were equally severe in both countries, it would produce a much lesser effect upon a country like India, whose wealth is mainly agricultural and dependent upon its internal Trade, than upon England, which is more than any other country dependent upon its manufactures and Foreign commerce. In India it may be said that Trade, as represented by the Exports and Imports, has simply ceased to progress, whereas in England it has greatly lost ground. And, as I shall refer to by-and-bye, this difference in commercial condition may produce a very considerable difference in the state of Prices. Nevertheless, so far as I can venture an opinion, I should say that prices have fallen somewhat in India; in other words, the value of silver, measured in general commodities, has risen:—and if this change has occurred to the extent of 10 per cent., the state of matters as regards the purchasing power of silver would (according to the “Economist’s” Table of Prices) be the same in India as in England. But, as already said, the value of silver might be considerably different in India from what it is here; because the value of that metal will naturally (that is, if all other circumstances be equal) stand somewhat higher in a country where it is the sole currency than in another where it is not money at all. In the course of time, no doubt, such a difference would disappear by the effects of diffusion and equalisation, but it may be expected to exist at present, or at any time when changes are actually in progress. Hence, were the state of trade or national prosperity identical in the two countries, I should expect that, if silver has risen 10 per cent. in purchasing power in this country, it would have risen somewhat more in the bazaars of India. On the other hand, the depression of trade being greater in this country than in India, will (as I shall explain by-and-bye) tend to produce a different and counteracting result.

I have taken England, a gold country, and India, a silver country, and such is the respective value of the precious metals in these two countries as shown by the State of Prices. So judged, there has undoubtedly been a rise in the value of Money during the last half-dozen years. As regards the simple matter of fact, no one can question that this is so. But the important

question is, Is this change due (so to speak) to Money, or to a transient condition of Trade? The state of Prices does not of itself show to what cause or causes the present change in the value of the precious metals is owing, or whether or not the change is substantial, or likely to be permanent, and not merely the transient result of a fluctuating Trade. Before this learned Society, I need not enumerate the manifold causes which may produce a change of prices, totally irrespective of the Supply of Money or the precious metals. There are constant improvements in manufacture, improvements in the production of raw material, and various other causes, which tend to lower prices—in other words, to raise the purchasing power of money. For example, while writing this Paper (in September), I found the following statement in a leading journal of New York, which is also worth quoting as showing the recent low state of prices in the United States:—"The purchasing power of the dollar has greatly increased. The mass of our population who labour do not receive so high wages as in former years. Rents, provisions, breadstuffs, and clothing are cheaper than ever known before." But this low state of prices would be exceedingly misleading, were it taken as showing that there has been a corresponding rise in the value of money attributable to an inadequate supply of the precious metals; for, besides the important effect of the resumption of specie payments (albeit it was really completed nearly a year and a half ago), the low price of provisions of all kinds has been largely due to the fine harvest in the United States, and the vast expansion of agricultural production during the present year. In fact, Prices, although the primary and most important exponent of a change in the value of the precious metals, are quite unreliable for showing the *cause* of the change,—whether it is in the Demand or in the Supply of Money, or as to whether the change is likely to be ephemeral or permanent.

I shall only offer one remark upon this subject. During the last thirty years, Prices have been chiefly influenced by two wholly distinct, and in their operation conflicting, factors. The steam-engine has been employed to annihilate Distance, and cheapen conveyance; and in this way steam-locomotion, both by land and sea, has caused Prices to rise in *remote* places, and to fall in the great towns, and in countries which are the hearts of Commerce. On the other hand, the new gold-mines have tended to raise Prices chiefly in the hearts of Commerce. As these and other factors operate more or less together, there is usually a tide-like change in Prices; indeed, even the same cause or factor may produce high-water in some places and low-water in others.

The State of Prices, then, being of itself so unreliable, or so



limited in its significance, let us look at some matters which lie behind prices. The two great factors which lie behind are, the Produce of the Mines, and the State of Trade;

### III.—*The Produce of the Mines.*

The total production of the precious metals when the new gold mines were at their best, viz., in 1852-60, was 36 millions sterling annually. At present it appears to be almost the same. But there has been a great change in the character of the supply. In 1852-60, the annual produce of gold averaged nearly 28 millions, and of silver a trifle over 8 millions. Of late years the supply of gold has averaged about  $19\frac{1}{2}$  millions, and of silver about 15 millions. Thus, if the Double Standard of gold and silver conjointly generally prevailed, no effect at all upon Prices could be produced by the present state of the annual supply of the precious metals. But in countries under a single gold standard, Money ought to be rising in value; and in countries under a single silver standard, Money ought to be falling in value. Nevertheless, as has been seen, silver still maintains its old purchasing power in India, or indeed has risen in value, while in England the purchasing power of silver has likewise risen; and gold in both countries has risen still more.

### IV.—*Effects of the State of Trade on the Value of Money.*

But now we come to another factor which lies behind Prices, and it is a most important one—namely, the State of Trade: using this term as synonymous with the material prosperity of a country. A Depression of Trade always, as a matter of fact, produces a fall of Prices; in other words, a rise in the value of Money. For example, referring to the “Economist’s” Table of Prices, we find that after the Crisis of 1857 prices fell  $15\frac{1}{2}$  per cent.; after the Crisis of 1866, 25 per cent.; and under the recent Depression of Trade, prices at the beginning of the present year stood upwards of 24 per cent. below the level in 1873. Mr. Jevons’s carefully prepared table is not brought down to the present time, but it shows the fall of prices during the depression of trade which followed the Crisis of 1857 to have been  $10\frac{1}{2}$  per cent., and during the depression which followed the Crisis of 1866, 8 per cent. And here I must remark that the great diversity between the level of prices shown in these two tables—viz., the “Economist’s” and Mr. Jevons’s—is a striking warning against dogmatism. Both of these tables are carefully compiled by able men, practised in this kind of work, yet the one table in some cases shows a change of prices *twice as great as in the other*. Thus in what appears, and indeed is, the surest and most computable of the factors which indicate the value of the precious metals—namely, the statistical department, or the state of prices—

we find a striking discrepancy, which makes it impossible to attain to anything like accuracy of detail. We can say that prices have risen or fallen (in other words, that the value of money has changed) so much according to this or that Table, but it seems hopeless at present to reach anything like perfect accuracy.\*

All evidence, however, concurs in demonstrating that money rises in value when Trade is depressed, and that is, when the extent of monetary transactions is less than usual. From one point of view, and the one which used to be regarded as paramount, this state of matters is very puzzling. During each of those above-mentioned periods of depressed Trade—in 1857 and 1866—there was no falling off or change of any kind in the annual supply of the precious metals; and at the same time there was much less Trade or requirement for money. Upon these grounds Prices ought to rise in a period of depression; yet, as we know, they do not. At such times the amount of Money in the banks is unusually large, and the banks are quite ready to part with it on unusually cheap terms. Money, in fact, is superabundant: nevertheless Prices stand unusually low. On the face of it this is a strange anomaly, and certainly it destroys a good many Theories which used to be current. The explanation appears to be, that in those cases of commercial collapse or depression there is a great loss of Wealth in the community. People have not so much wealth to spend. *Money* may be plentiful, but people cannot *employ* it plentifully. With less wealth, people have less command over money; they have not their former power of employing it. In other words, perhaps, it may be said that in bad times, people, having less wealth or property, cannot afford to employ or keep in circulation so much of it as usual in the shape of Money. They cannot afford to spend so much or to pay the old prices, whether for labour or goods. Merchants must trade, in order to maintain their commercial connections; manufacturers must continue their production, or else lose the interest on their costly factories and plant; and coal and ironmasters must keep their mines or furnaces in operation, or else have to incur a large expenditure in putting them at work again. Hence traders of all kinds will submit to very low prices rather than not trade at all.

\* The Fall of Prices owing to the several Depressions of Trade since 1850, is stated as follows:—(1) in the “Economist’s” Table; (2) by the same Table as corrected by Mr. Bourne; and (3) by Mr. Jevons:—

1857-59, “Economist,”	15·4	per cent. ;	Bourne,	15·7 ;	Jevons,	10·6.
’66-71,	27	”	”	16·38	”	7·8.
’73-79,	24·6	”	”	25·3	”	—

Mr. Jevons finds the effects of the Crisis of 1866 exhausted during the following year; Mr. Bourne continues the Fall of Prices to the end of 1869; and the “Economist” down to 1871.—See also Appendix B.

All classes, in short, in bad times, produce, trade, or spend upon lower terms; and thus, with diminished profits and less wealth, there are lower wages and lower prices. In other words, the purchasing power of money is greater than usual. At the same time, although Money *buys* more than usual, yet its value *on loan* is less, because people in trade—the great borrowing or discounting class—can hardly find profitable use even for the money which is at their own command. The actual amount of Reserve-wealth or Loanable Capital may be reduced, but the demand for it is reduced very much more—the result being a low Bank-rate.

I may illustrate the effects of a Depression of Trade upon the value of Money in this way:—As is well known, Money always “goes further,” or buys more, in a poor country than in a rich one; and, under a Depression of Trade, a country becomes, comparatively to its former self, a poor one. Hence the purchasing-power of Money increases. Thus far the case may be plain; but, on the other hand, the Rate of Discount or the Bank-rate becomes low,—which is the very opposite of what ordinarily prevails in a poor country. This anomaly may perhaps be explained by the fact that in a really or permanently poor country, the purchasing-power of money is high, because the nation has not been able to afford to provide itself with an adequate amount of money,—which can only be done by converting into money (*i.e.*, the precious metals) a portion of the *other* and spare wealth or property of the country. But in a rich country which becomes temporarily poor, through a depression of trade, an adequate supply of money is already in existence; and accordingly, when not employed or in circulation, it accumulates in the banks, and thereby facilitates the making of loans,—that is, produces a low Bank-rate.

I may offer one more remark upon the effects of the condition of trade upon the value of Money. That more Trade requires more Money is a truism,—albeit it was the neglect of this consideration which mainly occasioned the memorable mistakes as to the Future of Money committed by nearly all our leading authorities in 1850, and for a good many years thereafter,—the only correct appreciation of the effects of the new gold mines which I can find being that made, with marvellous sagacity, by Messrs. Tooke and Newmarch in the concluding volumes of the “History of Prices.” It may be said generally, that in any particular country and stage of its economical development, any given amount of Trade will require a similar amount of Money to carry it on. But this is merely a starting point—a general proposition which does not help much under the variations which one meets in actual circumstances. The amount of Money required at any given time, even in the same country, does not depend merely upon the amount of Trade-



transactions, but also upon the spirit and conditions under which that amount of Trade is carried on. When Trade is progressive and prosperous, more Money is required than when *the same amount of transactions* is being carried on under a stationary or falling Trade. For example, say that the Exports and Imports of a country (which roughly represent the state of Trade) amount to 400 millions: the amount of Money required to carry on that amount of business will be larger when Trade *rises* to that point, than when we come back to that point owing to a decline of Trade. Although the number of exchanges or business-transactions be the same, Trade is rising and prosperous in the former case, and depressed in the latter. And when Trade is prosperous, Prices are high, requiring more currency to carry on the same amount of business; and when Trade is depressed, Prices are low, so that less currency is required.

From these and other considerations, it is obvious that at a time like the present, when a severe commercial depression prevails, any reasoning or any statement of facts relative to the Value of Money would be utterly misleading, unless the effects of this Depression be taken into account. First, as to gold and silver separately. Let us suppose that but for this commercial depression, Prices would have remained as they were in 1873. In such a case the import or significance of the change which since then has occurred in the relative value of gold and silver would be greatly altered. If gold stood simply at its old value (*i.e.*, had not risen), then the recent change in the gold-price of silver would show a real depreciation. On the other hand, as prices stand, gold has risen so much compared with general commodities that the decline of silver relative to gold is not a depreciation at all, but merely a lesser rise in its value as measured by commodities. *Both* gold and silver have risen in purchasing power (*i.e.* relative to general commodities), but silver has not risen so much as gold has done; that is all. But how the case between the two metals will stand when the Depression comes to an end, remains to be seen.

Secondly, a depression of trade in each country where it prevails exerts a similar masking effect as regards money *as a whole*—whether it be gold and silver conjointly, or gold alone, or silver alone: it masks or temporarily obscures the normal and ordinary, or what may be called the natural, value of money. The present depression of trade is an exceptional condition of affairs, and exerts an exceptional influence upon the value of money—an influence which must cease when the depression has ceased.

But when the depression is over, there will come into play not one single and easily computable influence, but two absolutely conflicting influences. When the depression is over, Trade of



course will expand; and this increase of trade, with its concomitant increase of monetary transactions, will increase the requirement for money; therefore it will *tend to raise* the value of money: in other words, if this particular agency stood alone, there would be *low prices*. On the other hand, profits will increase, the old losses will be repaired; the national wealth will augment. Wages also will increase; and both employers and employed having more to spend will spend more, and with more profusion or less niggardly; the money in bank will be called into circulation, and *prices will rise*. In fact, with prosperous trade, wages rise along with profits; and a rise of prices is the invariable concomitant. Another usual result of such circumstances is a high Bank-rate. Thus, there will be *cheap money* as regards prices, but *dear money* as regards money on loan:—another of those anomalies and apparent contradictions which have to be taken into account, yet which have often been overlooked by authorities in forecasting the value of money.

Thus the various effects of Trade and of Demand upon the value of money are really of the most complex character. In former times, and at least as late as 1858, when M. Chevalier published, and Mr. Cobden translated, his well known book on “The Coming Fall in the Value of Gold,”—a book which even so thoroughly practical a man as Mr. Cobden endorsed and commended warningly to the English public, yet which proved entirely wrong,—a very simple sum in proportion was thought enough to forecast the value of money. “Here,” it was said, speaking of the new gold-mines, “is a prodigious increase in the quantity of money; therefore the value of Money must fall, and Prices rise in proportion.” Since that time the world has received many instructive lessons from Experience, and we now know how to avoid some of the errors formerly made; nevertheless the subject is still so highly complicated that any one may shrink from the task of actual prediction.

#### V.—*Production and Employment of the Precious Metals.*

I may venture, however, in addition to what has been already said, to speak with some confidence upon two points. These points relate to the effects of the actual Production and Employment of the precious metals. The *future* supply of gold and silver from the earth is too conjectural a matter to be dealt with here. New and rich mines will doubtless be discovered, but no man can say *where*, or what is much more important, *when*; and even as regards the existing mines, we can only affirm that they are not likely to be soon exhausted. But although only conjectures could be offered as to the future Production of the precious metals, we can

—the use which is made of it by nations or their Governments.

It is needless to say that the recent widespread demonetisation of silver must greatly tend to reduce the value of that metal. The chief and paramount requirement both for gold and silver now-a-days is *as money*; consequently the chief and paramount source or element of their value arises from the fact that *they are money*. The common saying that gold owes its value as Money simply to its natural preciousness as a commodity, I hold to be exceedingly incorrect. As money, gold acquires a legal value, *besides* its ordinary value as merchandise. Demonetise both gold and silver—as it is quite conceivable may be the fate of those metals ultimately in the remote future—and the value of those metals would at once be immensely reduced, it may be to a half, or even a quarter of the value which they at present possess as the costly counters which nations have agreed to trade with and accept as a measure of value. Already, in the most advanced countries, gold and silver might be, and to a large extent are, dispensed with in domestic *circulation*. Even now, specie is indispensable only in international payments—or rather, for a small part of them, viz., the “balance;” and if the nations come to suffer severely from changes in the relative value of the two metals—the depreciation of one and the appreciation of the other,—they will be tempted to see whether such fitful measures of value cannot be still further supplanted by other means of exchange, even in international transactions.

Needless though it be to say that silver must fall in value from the recent work of legislative Demonetisation, it is highly important to bear in mind a corollary, and necessary sequence, of this change. The Demonetisation of silver carries with it an inevitable *rise in the value of gold*. The amount of silver demonetised must be replaced by, and cause to be absorbed in new transactions, an equal amount of gold. If there were a great plethora of gold, such a change might be advantageous, and could not be embarrassing. But there is no such plethora of gold; and the amount of this metal required to take the place of the demonetised silver, must inevitably produce a scarcity of gold—*dear Money*, in this and every other country which has adopted a single gold standard. The amount of gold required for this *new* use must be very large, and each year in the future will make the amount larger. If the world had remained as it was in 1870, the seven millions a-year of *new* silver from the Nevada Mines would have been readily absorbed; indeed such a sum would hardly have done more than annually replace the mass of lost and worn-out silver throughout the world. But since 1872, besides the collapse of Trade, several of the leading Governments of the West have followed the example

of England in adopting a single gold standard; while France and the other States of the Latin Union have stopped the coinage of silver. Thus a vast amount of silver-money has been actually demonetised, while, almost throughout the whole Western world, the entire replacement of the worn metallic currency or coinage, and also all the additions to it, must henceforth be made in gold. And it will hardly be questioned that these requisite additions will be of no small amount.

A scarcity of gold, under such circumstances, is inevitable. Indeed the leading merchants and bankers of the City of London, a few months ago addressed a memorial to the Prime Minister, complaining that metallic money is growing scarce. The event is commonly spoken of as if it were a visitation of Providence,—a thing as much beyond man's power of prevention as the bad seasons with which we have recently been afflicted; and yet this scarcity of metallic money is entirely of man's making. The demonetising of silver is *a destruction of a large part of the world's currency*, wilfully produced,—a measure voluntarily adopted by Parliaments or enacted by Governments. Legislation creates this difficulty, and legislation could remedy it.

The common and strongest arguments in favour of a single gold standard are, firstly, that gold is best suited for wealthy countries where large payments are common. But even in England, as we all know, no large payments are made in coin at all; and as regards international payments, it costs no more to send silver than to send gold, because the cost of conveyance is not reckoned by the weight of the bullion but by its value. The other and more important argument in favour of a single standard (but one which be it noted, is as much in favour of silver as of gold), is, that a standard which rests upon the two metals is doubly unstable, because liable to a double set of fluctuations. I venture to say, there could not be a greater mistake than this. If the two bases were things wholly different and independent, the argument would be correct; but it is wholly incorrect when the two things are mutually interchangeable—when they can be used for the same purpose. No one will say that a man can stand better upon one leg than on two! I have never heard any sane man complain of having two legs because thereby he has to support himself upon “a double set of fluctuations.” Or put the case in another way:—Would any one think of maintaining that the cost of food fluctuates more when men can live both upon animal and vegetable food than if, with both kinds of sustenance within reach, they chose to live upon bread or butcher's meat separately? If either of these two kinds of food be in such abundance that people can wholly do without the other, then undoubtedly the people may



indulge their preference, and live upon that one kind of food alone. But if, as is actually the case, there is no such superabundance of food, people would be foolish indeed if they were to create an artificial famine, and starvation for themselves, by refusing to treat as food what *is* food. In like manner, it seems to me that for Governments or Legislatures to forbid the use of silver as Money at a time like the present, when metallic money is growing scarce, is as extraordinary an aberration as legislative wisdom could possibly exhibit.

To prevent misapprehension, I may state, or rather repeat, that I am not opposed to a single gold-standard, whether in a particular country or all over the world, provided the supply of that metal be sufficient to maintain such a monetary system stably; but I am opposed to the demonetisation of silver at a time when the supply of gold is not sufficient to meet the new and large requirements for it so created—that is, to take the place of the demonetised silver.

#### VI.—*Summary and Conclusion.*

Summing up the remarks which I have had the honour to submit, I would say that under the present remarkable Depression of Trade, the State of Prices cannot be accepted as a proof of what (from the imperfections of language) may be called the *natural* value of Money. At no particular time can Prices of themselves be relied upon to show whether the supply of the precious metals, as money, is redundant or scarce; and at the present time Prices are so abnormally affected by the State of Trade that they are still less reliable than usual for such a purpose. But we may safely reckon that ere long Trade will resume its progress and expansion, although not probably at the marvellous rate which the present generation have witnessed; that wealth also will augment, and that the requirement for money or the precious metals will become greater than it is at present.

Also, if we look at the production of the precious metals, especially the decline of the gold-mines, together with the widespread demonetisation of silver, I think that (wholly irrespective of the evidence of Prices) it can hardly be questioned that Money must be already growing *scarce* in countries which have a single gold currency, and that this scarcity will inevitably become greater and severe.

The effects of the fluctuating conditions of Trade upon the value of Money, are the most interesting, and, owing to their frequent occurrence, perhaps the most important, and certainly they are the most intricate and difficult to explain. But they are only a transient element in the present question; and if we would see what substantial change is in progress in the value of Money, we



must look to the more permanent element, namely, the Supply of the Precious Metals, and our employment of them as Money. The use of Money throughout the world is always extending with the spread of civilisation, growth of population, and increase of Trade; and whenever the produce of the mines seriously declines, the probability is that a scarcity of Money is impending. Upon this matter I venture to state my conclusions as follows:—

(1). As regards the value of Money in India. No one alleges that the Indian currency was in excess, or in any way depreciated, prior to 1873, *i.e.*, just before the change began in the relative value of gold and silver. Well then, since 1872, the annual supply or influx of silver into India, has been *only one-fourth* what it used to be during the seventeen years previously.\* Accordingly, *cæteris paribus*, a rise in the value of Money in India would be natural; and certainly it is inconceivable that there should have been a fall, or depreciation. Moreover, if there were a Fall or Depreciation, the rupee would lose a portion of its purchasing power, and hence a larger quantity of silver must be required than before,—whereas, as just shown, there has been a great *decrease* in the supply of silver in India. Mr. Bagehot has justly remarked that the Indian metallic currency is so large that a depreciation of merely 2 per cent. would require a great addition to the stock of silver. Whereas, I repeat, there has been a great *reduction in the annual supply since* 1872, when the change began in the value of silver compared with gold.

(2). Next, as to the value of Money in the gold-countries, or in England and the countries of the Western world generally. Since 1872, the supply of gold from the Mines has continued to decline, although only slightly, and at present the supply is nearly 30 per cent. less than it was between 1851 and 1860. At the same time, since 1872, the extensive Demonetisation of Silver has created a proportionate increase of the requirements for Gold. Hence, as the gold-supply has somewhat decreased since 1872, while the requirements for gold have been greatly augmented, the tendency of these circumstances must certainly be to raise the value of Money in those countries where gold is the sole or chief currency.

(3). Upon these grounds (apart altogether from the evidence of Prices) it certainly appears that the value of Money is rising

\* During the seventeen years ending on 31st March, 1872, the nett imports of the precious metals, or the increase of gold and silver in India amounted to 236½ millions sterling, or at the rate of 13·9 millions a-year: of which amount 154¾ millions were silver, giving an annual average of 9·1 millions of that metal. During the next four years—during which period the Fall of Silver relatively to gold occurred, and reached its maximum—the nett imports of silver into India amounted to 9,353,584*l.*, or at the rate of 2½ millions a-year, or little more than a quarter of the previous rate of supply.—See Appendix A.

throughout the world, both in the East and in the West,—the rise being greatest in gold, the metal most in use among the chief trading nations of the world.

(4). I see much ground for believing that, but for the wide demonetisation of silver in the Western world, the fall in the value of that metal relatively to gold would at most have been slight and transient. The use of silver-money, especially in the East, is so extensive as to require a large amount of that metal for the mere maintenance of those silver currencies, as well as for the additions which are naturally required, owing to the growth of trade. In 1873, the expenditure of British capital for the railways in India had come to an end; and, owing to the world-wide Depression of Trade, the foreign trade of India became, not retrogressive, but stationary. And under these circumstances silver, which had previously *risen* in value compared with gold, returned to its old and traditional price in gold. But thereupon the work of demonetising silver commenced in Europe, and the gold-price of silver has fallen greatly. But for this arbitrary change (*viz.*, the demonetisation), I think any change in the value of silver relatively to gold, would have been slight, and transient. Since the world proved able to absorb some 20 millions of new gold annually, is it not probable (to say the least) that now, when the gold-supply has diminished to the extent of 8 millions sterling, the world would have been able to absorb the 7 millions of new silver from Nevada? In fact, but for the demonetisation of silver, would not the recent deficit of gold have been just compensated by the increase of silver,—thereby preventing that “scarcity of metallic money” which the leading merchants and bankers of the City of London now deplore in their Memorial to the Prime Minister.

When one of the metals which constitute Money is becoming scarce, it is a strange procedure to demonetise the other.

## VII.—THE SUBJECT AT HOME.

Passing from this broad, if not world-wide view of the question as to the present and prospective Value of Money, I shall conclude by coming to the state of matters at home. Gold is the single money of this country, and it is gold that is becoming scarce; and I shall briefly call attention to one part of our Monetary System through which a scarcity will first make itself embarrassingly manifest.

It is some ten years since, in a discussion in this Society upon an able paper read by Mr. Chubb, I drew attention to the matter of which I shall now treat more fully, and which in the interval has acquired additional importance, namely,—the steady increase of the note-circulation of the Bank of England of late years, and

which seems bound to go on,—requiring a larger and larger amount of gold to be locked up in the Bank in connection with its note issues.

### VIII.—*Recent Growth of the Note-Circulation.*

For twenty years after 1844, the Bank's note-issues remained stationary in average amount, or indeed averaged somewhat less than at the time when the Bank Act was passed. At first sight this circumstance appears somewhat surprising, because during those twenty years the trade of the country had expanded vastly; more Trade requires more currency, or else an improvement in the methods of economising it. The new gold-mines of California and Australia enabled additions to be made year by year to our stock of "small money," the gold coins in permanent circulation, and these annual additions, in the aggregate, have amounted to a very large sum; but, simultaneously, our appliances for economising money increased in a still more remarkable and important manner. The employment of bank cheques in payments between individuals became general, and by-and-bye universal. Thereafter the "clearing system" established a similar economy of money between the Banks,—the system being gradually extended until it was made complete (in its present form) by the Bank of England joining the Clearing House in 1864. This sums up the monetary economies effected during these twenty years, and since then no new economy of the currency has come into operation. Consequently the currency itself has had to be increased, in order to meet the requirements of our expanding trade. As Mr. Newmarch has recently shown in a valuable article in the "Banking Magazine" an important cause of this rise in the amount of the Bank of England's note-issues is the large number of new banking offices (chiefly branches) which have been opened of late years; each of which, of course, has to keep in hand some amount of notes, as the basis of its operations.\*

\* Mr. Newmarch shows that during the last twenty years (since 1858) the number of banking offices, taking banks and branches together, in the Metropolis, has increased from 84 to 211, or nearly threefold; in the West of England the increase has been from 1,212 to 2,195, or 81½ per cent.; in Scotland from 609 to 950, or 56 per cent.; and in Ireland from 187 to 402, or 113 per cent. For the whole of the United Kingdom, Mr. Newmarch states that there has been an increase of banking offices to the number of 1,546, or about 77 per cent. Each of these new offices, of course, requires a certain amount in cash (notes and coin) in hand to carry on its business; and Mr. Newmarch says, "If we assume that the new bank-offices keep on the average no larger a sum than 3,000*l.* in Bank of England notes, this will account for 4·74 millions sterling out of the total increase [in the Bank of England's note circulation] of 6·60 millions—leaving an unascertained margin of only 1·86 millions—a sum most probably all absorbed in the larger bank-note reserves kept by the older bank-offices."—"Banker's Magazine," October, 1879.

The following statistics show the extent of the change as regards the note-circulation of the Bank of England. On the passing of the Bank Act in 1844 the note issues of the Bank amounted to 21,200,000*l.*, and, as already said, they remained a little below this amount on the average of the subsequent twenty years; that is, down to 1864. After that time the Bank's note circulation began steadily to increase, and during the last twelve months the increase has proceeded with unprecedented rapidity, doubtless owing, in great part, to the shaking of bank credit generally, by the scandalous and disastrous collapse of the City of Glasgow Bank and others. Although the banking panic has quite passed away, I think that the addition which it has occasioned in the note issues of the Bank of England as it now stands, and when trade revives, is likely to be permanent. The following figures show the average note-circulation of the Bank of England since 1844, and the great expansion which it has undergone since 1864:—

*Note Circulation of the Bank of England.*

	£
1844 to 1864 .....	20,500,000
'65. 5th July to 25th October .....	21,950,000
'71. 5th „ „ 25th „ „ .....	25,800,000
'72. 3rd „ „ 25th September .....	26,600,000
'73. 2nd „ „ 15th October .....	26,125,000
'78. 3rd April „ 14th August .....	27,900,000
'79. 1st January to 30th September .....	29,244,000

Here it appears that, apart from the events of the last twelve months, the Bank's note circulation since 1864 had increased by more than 7 millions; and at present, or rather, taking the average since the commencement of the present year, the increase has been  $8\frac{3}{4}$  millions since 1864,—and this despite an almost unprecedented depression of Trade, and consequent diminution of the ordinary requirement for bank-notes.

IX.—*Rise of the Bank-Rate.*

The effects of this change are of a serious character as regards the value of money in this country, especially when we consider the decline of the gold-mines and the new requirements for gold produced by the demonetisation of silver. As is well known, the Bank Act requires that for the portion of the Bank's note circulation in excess of 15 millions an equal amount of specie (three-fourths of which must be gold) shall be kept locked up in the Issue Department. Accordingly nearly 9 millions of specie have thus to be kept locked up *more than was necessary in 1864 and previously*; and the total amount of specie thus immobilised in connection with the



Bank's note circulation is now upwards of 14 millions,—an amount twice as great as the *entire* stock of coin and bullion which used to be held by the Bank previous to 1842.

The effects of this change have told seriously upon the Bank-rate, or the value of money on loan. When the Bank-rate rises to 5 per cent., money on loan begins to become dear; and the following tables show the stock of coin and bullion held by the Bank on the several occasions when the bank-rate was fixed at this point (*viz.*, 5 per cent.) in two periods: first, between 1844 and 1864; and secondly, since 1864 to the present date:—

1844-64 : *Five per Cent.*

£		£	
1847. 8th April .....	9,236,000	1860. 13th November....	12,536,000
'47. 23rd December ....	11,609,000	'60. 28th „ ....	12,419,000
'53. 20th September....	15,066,000	'61. 11th April.....	11,520,000
'54. 3rd August .....	12,594,000	'61. 1st August .....	11,482,000
'55. 27th September....	12,368,000	'63. 28th January ....	12,737,000
'56. 29th May .....	10,766,000	'63. 2nd November ....	13,300,000
'56. 1st October .....	10,227,000		
'58. 14th January.....	13,746,000		15) 183,496,000
'60. 12th April.....	13,890,000	Average .....	12,233,000

Since 1864 the corresponding statistics have been as follows:—

1865-79 : *Five per Cent.*

£		£	
1870. 27th July .....	19,252,000	1874. 16th November ....	20,201,000
'71. 7th October .....	19,500,000	'75. 7th January .....	22,085,000
'72. 2nd „ .....	21,156,000	'76. 6th „ .....	21,215,000
'72. 11th December ....	23,244,000	'77. 11th October.....	22,788,000
'73. 14th May .....	21,166,000	'78. 12th August .....	21,683,000
'73. 9th July.....	22,374,000	'78. 21st November ....	26,333,000
'73. 1st October.....	21,632,000		
'73. 4th December ....	21,667,000	Average .....	21,735,000

Thus, during the last nine years, the Bank-rate has been fixed at 5 per cent. when the stock of specie has averaged  $21\frac{3}{4}$  millions, as against  $12\frac{1}{4}$  millions in the previous time,—the 5 per cent. point being now reached while there are  $9\frac{1}{2}$  millions more specie in the Bank than used to be the case during the twenty years after 1844. In truth, owing to the increase of the note-circulation, the Bank is in no better position *now* with 22 millions of specie, than it used to be up to 1864 with only 12 millions.

The statistics above given show that the connection between the increase of the Note-circulation since 1864 and the rise of the Bank-rate (relatively to the stock of gold) is perfect,—the Circulation having increased  $9\frac{1}{2}$  millions, and the Rate standing at 5 per

cent. when the stock of coin and bullion is  $9\frac{1}{2}$  millions more than in 1864 and previously.

In giving these figures I have taken the averages,—a procedure which makes the extent of the change appear considerably less than it really is; for, as the figures show, the amount of gold in Bank requisite to maintain a 5 per cent. rate of discount is upwards of 26 millions; or twice as large as was thought or found requisite in 1864, and nearly three times as large as in 1844. In relation to the stock of gold in the Bank, the rate of discount has been rising throughout the entire period. Indeed it is a point worthy of notice that even during the twenty years ending with 1864,—during which period, as already shown, there was no increase of the Bank's note-circulation,—the Bank-rate was considerably raised relative to the amount of gold in the Bank. And this leads me to observe that the policy or system of the Court of Directors may and does exert a great influence upon the Bank-rate, irrespective both of the stock of gold and the amount of the note-circulation. For rather more than twenty years past, the policy of the Directors has tended towards quicker and greater elevations of the Bank-rate, compared with the *available* stock of gold, than had been customary before, and for some years immediately subsequent to, the passing of the Act of 1844,—the chief causes of the change being the ignoring of any difference between Home and Foreign drains of gold; these were treated entirely alike,—a procedure which I ventured to object to in two Papers which I had the honour to read before this Society in 1870 and 1871.\* The worst and only serious form of a Home Drain is that which occurs during a Commercial or Banking Crisis; and such drains always end, after a month or two, by creating a plethora of gold in the Bank. A year ago, however, during the Banking Crisis, the Bank Directors very considerably altered their practice, and the change which they then made was not only highly beneficial to the community, but, as seems to me, perfectly correct in principle.

Both the Act of 1819, and the Act of 1844 recognised bi-metallism—both gold and silver—as the basis of the note-circulation of the Bank of England. For a good many years after 1844, the Bank used to keep a portion of the specie in the Issue Department in the form of silver; but some years after the gold-discoveries, when silver rose above its old value, the Bank, very naturally, preferred to keep its locked-up specie entirely in the cheaper metal, gold. At any time the Bank can recur to its old practice, by keeping one-fourth part (about  $3\frac{1}{2}$  millions) of this specie in silver:

\* “On Our Home Monetary Drains, and the Crisis of 1866 (1870).” “On the Rate of Interest, and the Effects of a High Bank-rate during Commercial and Monetary Crises (1871).”

but, even if this be done, we shall still be in a much worse position than in 1864, because, as already shown, the increase in the note-circulation requires some 13 millions more specie to be kept locked up, or immobilised in the Issue Department.

While the note-circulation of the Bank of England has thus been increasing, and to all appearances is bound to increase, I need hardly say that there is another increasing requirement for gold at home—viz., the annual absorption of gold coin into the circulation of this country. In 1867, when preparing my book on “the Science of Finance,” I obtained statistics from the Mint, which showed that this annual absorption of gold, during the twenty-two years ending with 1865, averaged fully  $4\frac{1}{2}$  millions, exclusive of silver coin.\* This absorption, which is necessary owing to the want of small notes, proceeds very irregularly,—being largest, of course, when trade is brisk and prosperous; and it was exceptionally large in 1853, when the total net issue of coin from the Mint amounted to nearly 12 millions,—a considerable portion of which sum was taken abroad by emigrants, and to supply metallic money for Australia and California, before mints were established in those countries. What the present rate of absorption of gold into our currency is at present, I have not inquired; but if, as is probable, under ordinary circumstances of trade, it amounts to about 5,000,000*l.*, we have here—in the mere requirement for small change at home—a source of annual absorption equal of itself to one-fourth of the present supply of gold from the mines. This requirement for gold, then, must be taken into account, in considering the Future of Money, along with the increase in the note-circulation of the Bank of England, which necessitates a corresponding addition to the stock of coin and bullion immobilised in the Issue Department of the Bank.

Such, then, is the joint in our harness through which the scarcity of gold will first, and most obviously, make itself felt.

I had intended to include in this Paper the suggestion of some remedial measures for the scarcity of gold which appears to be impending, or to some extent is already existing. If it be

	£
* The total amount of gold and silver coined at the Mint between 1843 and 1865 was .....	128,139,427
The amount of light gold and silver coin withdrawn from circulation during the same period was .....	
	18,650,208
Net issue of coin from Mint.....	<u>109,489,219</u>

or at the average rate of 4,760,400*l.* a-year.

The total net issue of *gold coin* during these twenty-three years was 103,807,138*l.*, or on the average rather more than  $4\frac{1}{2}$  millions a-year. The statistics are given in full in “The Science of Finance,” p. 677.

the pleasure of the Society I shall be happy to treat of these matters on another occasion. For the present, it is enough to submit to you the facts and considerations already stated as to the present value of money, and the probability, as I think the certainty, that the leading countries of the world—at least if the demonetisation of silver be adhered to—are about to encounter a period of Dear Money, and a reversal of the monetary circumstances which so happily set in thirty years ago.

## APPENDIX A.

### *Absorption of Silver in India.*

TABLE showing the *Nett Imports or Absorption of SILVER in India, 1851-75; together with the Contemporaneous Produce of the Silver Mines. The Figures represent the Annual Average for Quinquennial Periods, in Millions Sterling.*

	Surplus Imports of Silver, and the Average Annual Increase after 1855.		Average Annual Production of Silver.		Increased Absorption of Silver in India, Marked Plus or Minus according as it Exceeds or Falls short of the Increased Production of Silver.	Price of Silver, per Ounce.
	Nett Imports.	Increase.		Increase.		d. d.
1851-55	2·6	—	8·14	—	—	61 to 61½
'56-60	10·03	7·43	8·14	None	+ 7·43	61 <sup>5</sup> / <sub>16</sub> „ 62 <sup>1</sup> / <sub>16</sub>
'61-65	9·97	7·37	9·63	1·49	+ 5·88	60 <sup>13</sup> / <sub>16</sub> „ 61 <sup>7</sup> / <sub>16</sub>
'66-70	9·43	6·83	10·21	2·07	+ 4·76	61 <sup>1</sup> / <sub>8</sub> „ 60 <sup>7</sup> / <sub>16</sub>
'71-75	3·05	·45	13·94	5·80	— 5·35	60½ „ 56½

The total Surplus Imports of Silver into India during these twenty-one years subsequent to March, 1855, amounted to 164 millions sterling. The total Produce of the Silver Mines during the same years amounted to 220 millions, of which amount 50 millions came from the *new Mines*.

### *The Indian Trade-Balances, and How they were Settled.*

The aggregate Trade-balances (or excess of exports of merchandise over imports) in favour of India during the official years 1855-56 to 1877-78 amounted to 455 millions. Of this vast amount 276 millions were paid in specie imported into India, and 148



millions by "Council Drafts," or bills drawn by our Government upon the Government of India. This leaves a balance of 31 millions unaccounted for, but which doubtless was settled by "private remittances,"—*i.e.*, bills drawn upon the Indian banks by Englishmen resident in India (chiefly for the support of their families in England), and payable in England.

The aggregate Trade-balance in favour of India during the twenty-nine years subsequent to 1848 amounted to 511 millions sterling; the entire production of gold and silver during the same period was, as nearly as can be computed, 940 millions—of which amount (taking the production at the beginning of 1848 at 16 millions) 464 millions was the produce of the old mines,—leaving 476 millions as the produce of the new mines since 1848. Thus it appears that, but for the Council Drafts and private remittances from India, the Indian Trade would have absorbed 35 millions *more than the entire NEW STOCK of gold and silver—i.e.*, the entire produce of the gold and silver mines discovered since the beginning of 1848.

These statistics are taken, chiefly, from various documents printed in the Appendix to the Report of the Select Committee of the House of Commons on the Silver Question in 1876.

APPENDIX B.—*Prices and the Bank-Rate.*

Year.	Tables of Prices.			Bank-Rate.	Notable Events.	Year.
	Economist.	Bourne.	Jevons.			
1845...					Railway Mania	1845
'46...			Rising { 115	Rising { 3		'46
'47...			116	3 $\frac{1}{4}$		
'48...			122	5	Irish Famine. Panic and Commercial Crisis	'47
'49...			106	3 $\frac{3}{4}$		'48
			100	3		'49
1850...					Average price of Consols 96 $\frac{1}{2}$	1850
'51...	104* Very low	103* Very low	101	Very low { 2 $\frac{1}{2}$		'51
'52...	107 * Very low	114 * Very low	103	3		'52
'53...			101	2	Consols reached 102, averaged 99 $\frac{3}{4}$	'53
'54...			116	3 $\frac{1}{2}$		'54
1855 ..			130	5		
'56...			125	4 $\frac{3}{4}$	Russian War. Loan of 16 millions	1855
			129	5 $\frac{3}{4}$		'56
'57...	136* Very high	140* Very high	132	6 $\frac{3}{4}$		'57
'58...	119 *	123 *	118	3 $\frac{1}{4}$	Severe Commercial Crisis	'58
'59...	115	118	120	2 $\frac{3}{4}$		'59
1860...						
'61...	122	123	124	High { 4 $\frac{3}{4}$	Financial depression in India	1860
'62...	124	124	123	5 $\frac{1}{4}$	American Civil War began	'61
'63...	131	125	124	2 $\frac{1}{2}$	Cotton Famine	'62
'64...	158 } Maximum period	144 } Maximum period	123	4 $\frac{1}{2}$		'63
	172	151	122	7 $\frac{1}{2}$		'64
1865..	162	138	121	4 $\frac{1}{2}$	Inflation of Joint stock enterprise	1865
'66...	162 } Maximum period	141 } Maximum period	128* High	7	Financial & Commercial Crisis.	'66
					Fall of Overend and Gurney's.	
'67...	137	128	118	Very low { 2 $\frac{1}{2}$	Bank-rate 10 per cent. for three months	'67
'68...	122	122	120	2 $\frac{1}{4}$		'68
'69...	121	118	119	3 $\frac{1}{4}$		'69
1870....						
'71...	122	119		3		1870
'72...	118	118		3 $\frac{1}{4}$	Trade proceeds "by leaps and bounds." Bubble Companies	'71
'73+	129	133		High { 4 $\frac{1}{2}$	and Foreign Loan Mania	'72
'74...	134	142		4 $\frac{3}{4}$	Semi-Crisis in November	'73+
	131	136		3 $\frac{3}{4}$		'74
1875...						
'76...	126	130		3 $\frac{1}{4}$	Collapse of Foreign Loans	1875
	123	123		Low 2 $\frac{3}{8}$	Bad harvests and Depression of Trade begin	'76
'77...	123	126		3		'77
1878...						
'79+	116 } Very low	118 } Very low		3 $\frac{3}{4}$	Banking Crisis. Fall of City of Glasgow Bank	1878
	Jan. 101	106		—	Harvest equal to only half a crop	'79+

† As above shown, the Tabular number which the "Economist" employs to represent the state of prices in 1873 is 134, and for January, 1879, the Tabular number is 101,—the difference in figures being 33. But this is not a fall of 33 per cent., as one of the speakers in the debate inadvertently assumed, but a fall of 24 $\frac{1}{2}$  per cent., as stated in the Paper.

DISCUSSION *on* MR. PATTERSON'S PAPER.

MR. COHEN said that Mr. Patterson had left little for anybody else to say on the subject. There were two points, on both of which the deductions were strongly in unison with these at which Mr. Patterson has arrived, to which he had, however, not alluded in his paper. They were, firstly, the change from paper currency to gold currency in the United States of America; and the slow contraction in a similar direction which was going on in Europe; and secondly, the very large works to which France had committed herself during the next decennial period. With respect to the first point, the initial effect of the introduction of paper currencies in many of the great countries of the world which enjoyed a large metallic medium, was to set free a very large amount of gold and silver. In the United States for the last eight or twelve years, there had been a very large amount of created money, as it were, which was accepted by the country itself, in lieu of metallic medium. In the very first year in which the greenback currency was no longer compulsory, its place had to be taken by a very large amount of metal, thereby increasing the absorption and consequent dearness of the latter. In Europe this was also going on. For example, in Austria and Italy there were similar causes at work in the same direction, to a less extent; and although the absorption of silver was undoubted, such had been the depreciation of silver, from its demonetisation elsewhere, that its value fell too far, as compared with the bank note; and the two Governments, especially that of Austria, took advantage of that circumstance, to reduce the amount of paper currency. Then there was also France itself, which now had made the bank note convertible, and although previously practically convertible, it was not legally convertible up to the commencement of last year. France now had to maintain a large circulation of gold. Therefore, as to the first point, all these countries were operating in the same direction, and the writer of the paper had not specially alluded to these circumstances, possibly considering them as natural causes. Then as to the second point, experience showed that one of the great factors in the price of money was the value of labour. There was an immense absorption of money created by any large scheme of public works, producing apparent prosperity which was really only fictitious, because, when great public works were in progress, the prices of commodities rose at the same time, and necessitated a larger individual expenditure of money. The French legislature has sanctioned a scheme by which an expenditure of 132,000,000*l.* sterling would be made in the next ten years. It had authorised the creation of debt, the annual issue of which was to be regulated by the Chambers, but which would amount to at least 12,000,000*l.* sterling per annum for the next ten years. Besides this French scheme, large public works had been undertaken elsewhere, and the effect of them had already

been shown in the enhanced value of commodities. America, and each of our colonies, were engaged in works which, although highly productive, must tend to the absorption of metals for the purpose of paying the workmen who were engaged in their construction. The world was now in a stage of constructive work larger than it had attempted for sometime past. This small island had made railways at a rapid rate, and its wealth was so large that it was enabled to do so in advance of other countries. But there was now a concurrent desire for railway making in all parts of the world. Gigantic railways were being made from the extreme west of Russia in Europe, to the extreme east of Russia in Asia; and experience would show that unless there was some new secret source of wealth to be discovered, the value of gold must gradually appreciate from this cause alone, if from no other. These considerations were of importance to the artisan and to the trader. It was not a misfortune that there should be a period of moderately dear money; but it was a misfortune when jerks in trade were produced by commitments to gigantic enterprises, which required longer periods for their development than the impatience of some countries was prepared to afford.

Mr. HENRY HOARE thought that although it was not difficult to arrive at a general notion of figures and statistics, there was nothing so vague as the knowledge about the value of money and the value of gold. Everyone admitted that the value of gold was dependent upon the quantity of goods that people would give for it, and as this naturally varied from time to time, it must depend upon the amount of supply and demand. The amount of gold had been estimated to be about 1,200 million pounds; and the amount of gold that had been transplaced and had been taken from the general stock and brought into new quarters was something like 200 millions. At the time of the German war, the French Government had borrowed 60 millions from the Bank of France, and he believed that the greater part of that was in gold. The amount of gold absorbed in Germany was something like 60 millions, and there had been a similar amount absorbed in the United States, therefore under those three heads there was in round numbers about 180 millions, the whole of which had been taken from the general stock of gold and put in circulation into new quarters, replacing paper money in France, replacing silver and paper money in Germany, and replacing paper money in the United States. He thought a good deal more wanted to be worked out in relation to the difference between gold, as money, and paper money and bank balances. In a time of great trade, a large number of bills were current, and these would produce, for the time, the same effect as a large quantity of gold. He thought the natural contraction of the currency in times of depression would in a great measure account for the low prices then ruling.

Mr. BOURNE thought that Mr. Patterson failed, as he himself seemed disposed to admit, to make out that the rise shown by the alteration of prices really substantiated any increase in the value of



money; for this reason principally, that if the alteration in prices had resulted from an alteration in the real value of the money by which those prices were estimated, there would have been something like regularity and fixity in their relations. The point on which he wished to touch was this: that there was no irregularity in the changes in prices at all comparable or at all equivalent to the changes in the quantity of gold in existence at the time, or the amount of gold produced. Now, it would be expected that if it was an alteration in the value of gold itself that effected a change in prices, the various articles would follow the same rule. Mr. Patterson had alluded to prices in India, and spoke of two articles selected by Mr. Crawford; but these in themselves, although they were not individually fitting articles to be chosen as examples, were not sufficient to regulate the whole comparison. He agreed with Mr. Patterson in that opinion, for he (Mr. Bourne) had himself attempted to draw a comparison of prices in India, and found it was utterly impossible. The cotton at one time showed a rise, and wheat at another, and the various causes operated to produce a difference in price utterly irrespective of the quantity of gold in circulation or the value of silver. He therefore inferred that the change had been in the prices of the goods themselves, and not in the gold by which they were represented. This would make all the difference in their calculations; and he thought such would be fully made out on an examination of the case. Again, Mr. Patterson had spoken of silver as though it had absolutely risen in value in our own country; but he (Mr. Bourne) rather thought that the figures to which Mr. Patterson had referred, did not support the conclusion to which he had arrived, and he was not able to reconcile these with the present state of prices. The "Economist" said that the value of silver as compared with gold was 11 per cent. less than the value of gold compared with other commodities. At the present time he thought it was 22 per cent. In 1873 the "Economist" prices were 134 and, in 1879, 101, which made a difference of 33 per cent. in prices; at the same time there was 13 per cent. only in silver; therefore the difference was 22 instead of 11. He thought Mr. Patterson had made his calculations last year, and that they were not in accordance with the present state of things. Recently there was an undoubted rise in prices, which seemed to impugn the conclusion at which Mr. Patterson had arrived. The inflation of 1873 was one which could not possibly last, and he thought it was hardly fair to take those prices as a test, and to compare them with the prices of the present time, when they wanted to judge of the value of money. Allusion was made to the variations in the prices as shown by the "Economist" and himself. He (Mr. Bourne) had ventured to alter those of the "Economist," because the selected articles embraced four descriptions of cotton, and thus the great fluctuations in the price of the raw material affected the general results fourfold. In like manner he thought his friend Mr. Giffen, in his paper on the "Prices of Exports," had selected a year in which the coal famine had abnormally raised all articles into which the price of coal entered, and thus vitiated the comparison between that year and 1877. Mr. Patterson had spoken of the falling off in

India. Now it seemed to him that that depended very much upon the state of her export trade. In 1873 the surplus of India's exports over her imports was 31 millions, and in 1876 only 19 millions, making a difference of 12 millions; that had to be supplied by silver, and which would account for the falling off of the quantity of silver in India. Again, precious metals were not like articles of consumption, which went on importing at the same rate. The importations were expected to be regulated by the trade. He took it that the real necessity for the use of gold in settling international balances, did not so much depend upon the aggregate amount of trade, as upon the balances of trade that had to be settled. Taking the case of America and England at the present moment, there could be no doubt that if our transactions with America were settled by the agency of circulating medium, we should be denuded of gold in a very short time, because America was taking from us 60 millions or 70 millions worth of goods more than we were taking from her, the reason being that the balances were settled by the use of securities of various kinds which one nation parted with and another nation took, instead of being taken by means of gold. There was no doubt that at the present moment America was settling her balance with us by the purchase from us of the securities we held formerly in her country, and hence the extreme difference had not been made manifest, because it had been quietly going on in that way. But, again, they could scarcely conceive of a metallic scarcity at the present moment. There was no want of it experienced in this country nor in America. The great extension of banking facilities in this country, the use of cheques, the ease with which securities were transferred from one country to another, seemed all to supply the place of a metallic medium.

Mr. GIFFEN remarked as to what Mr. Bourne had said with reference to there being no deficiency of metallic money at the present time, that this was no answer to the statement that a deficiency of metallic money had caused an unusual fall of prices; the fall having taken place, money was again abundant for the moment: but only for the moment. To compare the present time with 1873 merely was a very insufficient process. The only way in which any profitable result could be arrived at, was to take as many cycles of prosperity and adversity as was possible, and to compare the prices of one prosperous period with those of another prosperous period, and also to compare the prices of one depressed period with those of another. If that were done and it was found that at one period of prosperity the aggregate level of prices did not rise quite so high as in the previous period of prosperity, or rose higher, then at the next period of depression it was found that the fall was to a much lower level on the average than in the previous period of depression, or to not quite so low a level, he thought that from these facts there would be an indication of the general rise or fall of prices; and that general rise or fall of prices was only another way of stating that there was a depreciation or appreciation of the standard money in which the prices were expressed. This very point was dwelt upon a great deal in

a famous book of Mr. Jevons, in which he showed that a great fall in gold took place between 1848 and 1860. He proved that the average level in prices was higher in 1860 than it was in 1848, and it was found that a sovereign did not go so far at one period as at another. This was what was meant by a general rise of prices. Since then there was an indication that there had been a movement in the opposite direction. Comparing one prosperous period with another, and comparing a depressed period with a depressed period, it was found that a sovereign now went farther than it did some ten years ago. He thought that was only an indication; but it was no sufficient answer to say that at a particular moment money seemed to be abundant, and there was plenty of money in the banks. He thought also there had been a great deal of evidence to show that there was now a scarcity of bullion for all the wants of the world. The recent stringency in the United States was an unmistakable proof. The United States had lately wanted metal very much, and he should say that very nearly 16 millions sterling from the 1st of August last had been shipped from England and France to the United States [Mr. Lionel Cohen—19 millions], and part of that money had actually been used in the United States, and in a quarter where scarcity of money would show itself most, namely, in the reserve of the banks. The New York banks alone held 7 millions or 8 millions sterling more than in August last. Although then quite lately the surplus in the Bank of England and the Bank of France seemed to be so enormous, it had gone away quickly, and both these banks had raised their rates. Mr. Bourne had repeated the challenge to some of his (Mr. Giffen's) figures, but nothing he had said affected the comparison he had made between 1873 and 1877 in point of fact. Taking a certain group of articles, and taking the average prices of those articles in 1873, and comparing them with the actual prices in 1877, would be a good comparison as far as it went. In fact it would be found that the average price of these articles in 1877 was very much less than that of 1873, and any diminution of the decline in these two dates must be a decline in price only. It might be true that the figures in 1873 were abnormal; but that did not affect the correctness of the actual comparison in the two years. Referring to Mr. Patterson's paper, he should like to make a small correction as to what Mr. Patterson had said regarding the annual consumption of gold in the coinage of this country at the present time. He did not think it was necessary for Mr. Patterson's argument to put it so strongly, but he thought that Mr. Patterson had a good deal overstated what the consumption really was. Mr. Patterson had put it at between 4 or 5 millions. Some years ago it might have reached that sum, and he believed it did reach it, but during the last ten years the consumption of gold in the United Kingdom for the coinage had not been so much as 4 or 5 millions. So far as he could make out, the proper figure of the consumption of gold in the coinage would not exceed about 2 millions per annum during the last ten years. The sum was rather a difficult one to do, because one would have to take the actual coinage, which during the last ten years had been about 47 millions sterling, and



to deduct from that the light coin withdrawn, and that had been melted and re-coined. That would bring it to 35 or 36 millions; and after that, there had to be deducted the excess of the exports of British gold coined over the imports. There was a constant movement going on, and the net export of coin in this way could not be put in the last ten years at less than 15 millions sterling, and that would bring the consumption at home to about 20 millions sterling, or 2 millions a-year. In addition, however, a large export of coin took place in the pockets of travellers, and that would reduce the estimate of coin going into circulation in this country still more. Another comparatively small point seemed to be in regard to what Mr. Patterson said about India. He (Mr. Giffen) did not think it was quite fair to take the last few years, and compare them with the seventeen years previous, for the reason that those seventeen years included a most extraordinary time, the time of the cotton famine, in which the consumption of silver in India was on a most abnormal scale. The silver then went to India in enormous quantities for special purposes, and was absorbed in a special way. It appeared to him, as far as the average consumption of silver in India was concerned, if the time say before 1850 was compared with the present time, it would be found that there had been an enormous increase in the import trade in India. He was also inclined to think that in some parts of India, there had been a considerable rise in prices, in consequence of the enormous absorption of silver in the seven years ending about 1870. Certainly in some parts of the Bombay presidency there had been such a rise in prices as he had hardly known of anywhere. The particulars of it were to be found in some official papers published a good many years ago, showing that enormous changes had taken place in India in consequence of the absorption of silver owing to the cotton famine. What he wished to say generally about Mr. Patterson's paper was, that he believed there were indications of a gold scarcity which it was very difficult to estimate at the present moment, because so little time had elapsed to show the actual reduction in the range of prices at the present time compared with what it was ten, twelve, or twenty years ago. It took a long time to show these things statistically. There had been since 1860 a lower range of prices all round, and it seemed to indicate a state of things that might be called a gold scarcity, which might be expected to go on. He thought Mr. Cohen had explained very well how we would be affected by the demands of the United States. Taking all these things into consideration, and also the fact that we were in a present state of depression, we might look forward for the next few years to high rates of discount, and as a consequence of that, eventually a fall of prices. He should like to dissent from the apparent impression given by Mr. Patterson's paper, that he held opinions in favour of bi-metallism. It seemed to him that to condemn the general demonetisation of silver as unwise, was really a very different thing from approving of bi-metallism, and Mr. Patterson had apparently confounded the two things.

Mr. BOURNE said he did not for one moment impugn Mr.



Giffen's calculations, he simply said he did not think the variation of the prices in two such years at all went to establish the fact that there had been any difference in the value of the money.

Mr. WALFORD said he could not help feeling that while the paper was a natural effort to eliminate a theory out of the question of the rise in value of money or the decrease in money, the author had not taken into account sufficiently accidental circumstances, such as the question of supply as regulated by good or bad harvests, which in his judgment regulated the question of prices much more than the actual supply of currency. There was only a small portion of the currency in use in the case of international exchange for commodities. There was another point which affected the question very much, and that was legislative interference. In some countries the customs on imports had to be paid in gold, some in silver, and some in other ways; and there seemed to be always a legislative interference going on which would affect the bullion requirements in those countries. In the United States, during his recent visit of some months, he observed that the people, having got used to paper money, would not voluntarily use bullion; but the Government were forcing the use of gold and silver by withdrawing the paper. It could not be said that the bullion now flowing over to America was in the natural course of events. The abundant harvests there, and the deficient ones in Europe, had caused a very large amount of money to go. This circumstance fitted in with the policy of the Government there at the moment. Bullion after all was only one, and a small, element in the mercantile transactions of the world, and a temporary necessity for it in any one locality caused fluctuations. Bank notes must always be an important medium in home dealings; and Bank of England notes were every year becoming a more extended medium of exchange in different parts of the world. They were all indebted to Mr. Patterson for a very able paper.

The PRESIDENT (Thomas Brassey, M.P.) said he could not claim to be in any sense an authority on the complex and important question that had been brought under their notice in Mr. Patterson's able paper. It was a valuable contribution to the *Journal* of the Society, and he was sure they were all very much indebted to Mr. Patterson for the labour he had bestowed upon it. Having had a good deal to do with commercial matters, he (the President) had many reasons for appreciating Mr. Patterson's difficulty in satisfactorily determining the appreciation or depreciation in prices. Mr. Patterson had drawn an inference with reference to the value of gold from a comparison of prices at the present time with those current in the year 1873. That was rather too short a period to justify any generalisation. If, however, exception were taken to the policy of our Government in selecting gold as the standard, a policy which had been framed with the idea of using that metal which was most likely to be the best in point of value, the fluctuations of prices as detailed in the appendix to Mr. Patterson's paper, showed that that policy on the

whole was justified by experience. It had been said that prices had fallen very sensibly since 1873. Were they to trace that fall in prices entirely or mainly to the appreciation of gold? On that point he would venture to say, as a commercial man, that prices had fallen from causes with which the question of gold had not any direct relation. Certainly prices had fallen, in part because producers and manufacturers had been obliged to forego the profits they were realising in 1873, and also because the labouring class had been obliged to submit to a very considerable reduction of wages. It was a question, therefore, whether this fluctuation in prices was not as much a depreciation in profit and wages as a depreciation in gold. Looking along the columns compiled by the "Economist" and Mr. Bourne, he would venture to say that the value of gold would, on the whole, appear to have been remarkably steady. Mr. Giffen had said that prosperous years must be compared with prosperous years, and unprosperous years with unprosperous years. There was a remarkable recurrence of the same average of prices at different periods in the period embraced in the table. For instance, the figure 118 appeared in the tables of prices in 1878, in 1871, in 1869, in 1859, and again in 1853. So, too, in regard to the bank rate, the same figures were found occurring from time to time over a long period of years. In view of these facts, he ventured to say that on the whole the policy of the Government in adopting gold as the standard had been justified by experience. It was known that in India another metal had been adopted as the standard, and in India there had been a serious fall in the value of silver. That had recently been the subject of an elaborate parliamentary inquiry. The value of silver in India had been very seriously impaired by the policy unfortunately adopted in Germany of the demonetisation of silver. That policy had thrown a large amount of silver on the market, and had affected prejudicially the value of silver in India. Something had been said in regard to what seemed to be a waste of money when the wages rose unduly. He should be very sorry to advocate an undue rise of wages; but he thought they had heard a good deal of late with reference to the impaired activity of trade in the home market, and its depressing effect upon our manufactures generally. This, he thought, was very certain, that the distribution of money in the form of wages did cause a demand for commodities, and it was equally certain that serious reductions in wages prejudicially affected the home market and our trade generally. He was sure he was doing what all present would desire, when he expressed to Mr. Patterson their acknowledgments for the great services which he had, not for the first time, rendered for the Statistical Society, in preparing such an able paper upon so difficult and important a subject.

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*The STRIKES of the PAST TEN YEARS.*

*By* G. PHILLIPS BEVAN, F.S.S., F.G.S.

[Read before the Statistical Society, 20th January, 1880.]

I APPROACH the subject of my paper this evening with the greatest diffidence, and a strong distrust in my own powers to deal with it as it should be dealt with. The subject itself is not a grateful one; and I am sure that all who have paid any attention to the labour question, will join with me in the appreciation of the difficulties with which it is surrounded, and in a very decided feeling of dissatisfaction at the results of our inquiries into the particular branch of trade disputes. Indeed, at the very outset, the thought naturally occurs, *cui bono?* For what object are we examining the strikes of the past decade? What can be the good of raking up quarrels which should never have been begun, and that should be consigned to limbo as soon as finished; and why should we seek to disinter the chronicles of disputes which have passed into the regions of history? To this not unreasonable question I would reply, that it would be well for this country if strikes *had* become a matter of history, instead of being episodes of the present time, so constant as to be the rule and not the exception. Striking has become a disease, and a very grave disease, in the body social, a remedy for which has long occupied the attention of learned sociologists and legislators, but which as yet shows no sign of having run its course. I think therefore that it is not only useful, but necessary, for all who are interested in the proceedings of capital and labour (and who are not, directly or indirectly?), to examine and diagnose this great evil in all its bearings, as it is only by so doing that we can arrive at any hope of alleviation. For myself, I do not believe in any speedy cure by legislative measures or any one course of action. What I have endeavoured to do in this short paper, is to bring together as many cases of strikes as I have been able to collect, that have happened within the last ten years, as a text upon which the opinions and discussions of this Society may be founded. It is, I have reason to think, the first time that this subject has been brought before the Statistical Society: and although many a pleasanter one could have been selected, not one could be discussed which is of more vital importance to the country. I am happy to know that it will be discussed by an assembly which is so eminently calculated to do so judiciously and dispassionately, free from the

bias with which the employer naturally views the question, or from the intemperate spirit which so often characterises the disputants on the other side. I feel sadly conscious that my investigations have been most imperfect: for I have met with more difficulties than I expected in the way of procuring information. Strikes, numerous as they are, have been so imperfectly chronicled, even in those journals and publications which profess to devote most attention to industrial matters, that the labour of getting at the simple fact of their occurrence has been very considerable, and in a vast number of cases I have only been able to state that such and such a strike did take place, without any further information. Even this bald statement, however, is not without its uses, for it has enabled me to make an aggregate of the number of labour disputes, which may perhaps startle those who have engaged in them, if they ever do happen to reflect upon the enormous hindrance to labour and trade that these quarrels represent. The causes of strikes are so few, that it becomes monotonous to read them: nor is it perhaps very essential to our subject to know what is the reason of each strike, as long as the strike takes place. But the points of information which are most lacking, and the absence of which I very much regret, are the results. There is an especial difficulty about getting at the results of the termination of a strike, unless it happens to be one on a very large scale, so large as to be chronicled from day to day in the public papers: the reason being, that whether masters or men are victorious, neither side are anxious to trumpet forth the fact, but prefer to let the whole quarrel glide into obscurity without enlightening the outside world as to its specific features. I have however been able in a great number of cases, the majority indeed, to ascertain pretty correctly the duration of the strike, a very important fact when we try to arrive at any calculation as to the cost of a strike to the country. In the case of very large and important strikes, we are often informed as to the probable loss sustained, sometimes stated, as it were, *ex cathedrá*, in the report of a trade society, but more frequently the result of a simple guess, which as often as not is exceedingly wild and vague. Supposing it were possible to arrive at an accurate conclusion as to the loss in wages of the aggregate strikes, which seems to me to be scarcely feasible, considering the lack of data, I fear that the figures, gigantic as they would be, would have no appreciable effect in checking the recurrence of strikes; for the moment that a fresh *casus belli* arises, all prudence seems to be flung to the wind. The losses, the miseries, the starvation, the debt, the destruction to trade, which have occurred on previous occasions, are forgotten in the bitterness of fighting; and it is only the sober few, whose age and experience remind them sadly of the past, that hold up their hands



for peace, and council a more prudent policy. This is supposing the quarrel to be a *bonâ fide* one, and not a question of deliberate war carried by the trade societies into the enemies' ground. It is much to be feared that an offensive campaign of this kind has not unfrequently been commenced and persisted in as part of a determined scheme, against which the feelings of the majority of workmen, who have to contribute to the strike fund, would decidedly pronounce, if full opportunity and free licence of opinion were allowed. If however the statements made by Mr. George Howell in "Fraser's Magazine" for December last are correct, it appears that strikes are frequently carried on because it pays the strikers to do so; and if undertaken in this way as an investment, I confess that I do not see much hopes of any solution of the difficulty.

The following table shows the number of strikes that have taken place during the last ten years, as far as I have been able to obtain the facts, to amount in the aggregate to 2,352, viz. :—

1870 .....	30	1875 .....	245
'71 .....	98	'76 .....	229
'72 .....	343	'77 .....	180
'73 .....	365	'78 .....	268
'74 .....	286	'79 (to 1st December)	308

The numbers of 1870 and 1871 are out of all proportion to those of succeeding years, and the only way in which I can account for it, is the fact that a great epidemic of strikes broke out at the end of the latter year—an epidemic which has unfortunately become chronic, and seems, if anything, to grow in intensity. It may be, too, that public attention was not so much directed to these questions as it has been of late years; so that many disputes might have taken place, which were not chronicled in the local papers. The causes of strikes are monotonously due to either demands for advance of wages and resistance to a reduction, or, what seems to be the same thing, an increase or a decrease of working hours. The great number of strikes that took place in 1872-73, which have not been equalled either before or since, happened at a time when, as we all remember, industry was at its highest. Labour was in extreme demand; there was a great inflation of prices, which culminated about 1874; and as a matter of wage, men could get pretty well what they liked to ask within fairly reasonable limits; sometimes, indeed, the limit might well have been pronounced extravagant; still they were not satisfied; and though the generality of them were earning more money than they had ever earned before, they determined to work the question in another way, and demand a reduction of working hours—a reduction which in the main was universally complied with, though not until after many disastrous

quarrels. At the present time we see the converse of this state of things. Times are bad—worse almost than we have ever known them—and although the inevitable decline of wages which has taken place during the increasing depression of trade has provoked many strikes, the men have been obliged to bow to the necessities of the occasion, and have not been able to carry on their resistance with the same pertinacity which they could afford to exercise in brisk seasons. The masters have seized their opportunity, and done in 1879 exactly what the men did in 1872-73, viz., made an effort to win back the extra hour which they then conceded. This is partly the explanation of the large number of strikes in 1879.

Looking through the detailed list of later quarrels, I find that amongst the extraneous causes are—alterations of old rules in factories and workshops; piecework; refusal of the men to allow women to participate in their employment (as in the case of the Nottingham hosiers in 1871); dismissal of workmen; insubordination (as in the case of the gas-stokers at Beckton in 1872, when they nearly succeeded in plunging London into darkness); the importation of foreign labour (as in the case of the experimental beetroot sugar making at Lavenham, in Suffolk, in 1873); the introduction of juvenile labour; legislative interference (as in the case of the chain cable makers of Newcastle, who struck in 1873 because the Act required a chain of stronger straining power than they had been in the habit of making); an increased speed of loom (as in the case of the carpet weavers at Elderslie in 1874); dislike to check weighmen (as in the case of the Tyldesley and the Barnsley colliers in 1876, the Ryhope colliers in 1877, and the Wigan colliers in 1879); the introduction of labour saving machinery (as in the case of the bootmakers of Leeds in 1876); disapproval of an arbitration award (as in the case of the Ashton towel weavers, and the Middlesbrough ironworkers in 1878); the Manvers Main colliers who struck against Mr. Mundella's arbitration; the colliers at Dodsworth, in 1877; the Northumberland colliers, in the same year, who declined to accede to Mr. Herschel's arbitration; the painters at Preston, and the Wolverhampton joiners. Colliers have also struck against the use of a more stringent safety lamp (as in the case of the Carlton Main and Rawmarsh colliers, in 1878); and there have been strikes also against the employment of non-unionists (as in the case of the Padiham building operatives); against riddling in collieries (as in the case of the Kippax collieries, 1878). These are amongst the minor causes that have produced quarrels, the great majority being, as before stated, against a reduction or for an advance of wage. The persistence with which large bodies of men have fought a hopeless battle is worthy of the highest praise, were the energy a bit better directed. The Manchester

joiners, in 1878, fought for a whole year for an increase of wages; and at the end of that time, those who did not find their places filled up, were glad to get back at less than the original terms; while in the same year the Dundee slaters disputed unsuccessfully for two months for an extra halfpenny per hour, and the Corton Main colliers stuck out for many weeks against what amounted to five-eighths of a penny.

Let us now examine how many trades have struck in the last ten years, and which are the industries that seem most open to this course of proceeding. I have drawn up two tables on this subject—the first rather more in detail, and the second dealing with the trades in groups. The subdivisions of labour are so numerous in the present day, that I have been obliged to comprise a good many classes under one head. Under that of the iron trade, for instance, are included not only the workmen in an iron or steel establishment, such as furnace men, puddlers, rollers, hammerers, &c., but also blacksmiths, moulders, foundrymen, and other subsidiary classes of operatives. Under the heading of engineers are comprised fitters, mechanics, and engine tenters; while under that of the cotton trades are winders, piecers, self-acting minders, strippers, grinders, spinners, weavers, &c. The result of the list shows that 111 trades are implicated in these disputes. Of course, as might be expected, the staple industries exhibit the largest number of strikes; but it is encouraging to find how few of the trades *do* strike in comparison with those who do not. Even some of those who figure in our list might almost be eliminated, as far as the number and duration of their strikes go; for, what we may call the striking trades are limited to some forty or so. Taking the last census tables of the industrial population as a general guide to the number of trades, we find that they are set down at 187, and it is perhaps a source of congratulation to observe the small proportion of industrial combatants, although the fighting instinct in this proportion is a matter of regret.

TABLE II.

Trade.	'70.	'71.	'72.	'73.	'74.	'75.	'76.	'77.	'78.	'79.	Total.
Agricultural labourers....	1	—	3	—	1	1	—	1	5	5	17
Anchor makers.....	—	—	—	—	—	—	—	—	—	1	1
Axle makers.....	—	1	—	—	—	—	—	—	—	—	1
Bakers.....	—	—	10	7	4	—	1	1	—	—	23
Beetsugar makers.....	—	—	—	1	—	—	—	—	—	—	1
Bobbin makers.....	—	—	—	—	—	—	—	—	—	1	1
Boilermakers.....	—	—	4	4	3	6	2	3	4	1	27
Bookbinders.....	—	—	1	3	1	—	—	1	—	—	6
Brass and copper workers.....	—	—	1	1	1	1	2	1	—	4	11

TABLE II—Contd.

Trade.	'70.	'71.	'72.	'73.	'74.	'75.	'76.	'77.	'78.	'79.	Total.
Brewers.....	—	—	1	—	—	—	—	—	—	—	1
Brick and tile makers .....	—	—	6	3	2	—	2	—	—	2	15
Brickbat makers .....	—	—	1	—	—	—	—	—	—	—	1
Bricklayers .....	—	2	6	6	10	6	8	3	5	6	52
Brushmakers .....	—	—	3	2	—	1	3	—	—	—	9
Building operatives .....	1	1	15	4	4	2	3	3	3	7	43
Butchers .....	—	—	1	—	—	—	—	—	1	—	2
Cabinet makers and } polishers .....	—	1	4	8	3	2	6	8	2	3	37
Carpenters and joiners .....	1	4	34	27	23	25	19	25	14	15	187
Carpetmakers .....	—	—	1	1	—	2	1	—	—	1	6
Carriage and waggon } builders .....	1	1	5	3	4	1	5	4	1	5	30
Casemakers .....	—	—	—	—	—	1	—	—	—	—	1
Causeway layers .....	—	—	—	—	1	—	—	—	—	—	1
Cement makers.....	1	—	—	—	—	—	—	—	—	1	2
Chain makers .....	—	—	1	—	—	—	—	—	—	—	1
Chemical operatives.....	1	1	—	2	6	2	1	—	—	3	16
China-clay diggers .....	—	—	—	—	—	1	1	—	—	—	2
Cloth and wool opera- } tives .....	—	2	6	5	—	4	5	3	8	4	37
Colliers .....	4	15	26	46	41	23	20	19	56	64	314
Combmakers.....	—	—	—	—	—	—	1	—	—	—	1
Confectioners .....	—	—	—	—	—	—	—	—	1	—	1
Coopers and packing } case makers .....	—	1	4	4	2	1	—	1	—	—	13
Corkcutters .....	—	—	—	—	—	—	—	—	—	1	1
Cotton hands .....	3	5	3	11	6	10	7	9	42	24	120
Cutlers and tool makers .....	1	—	4	2	3	2	3	—	2	5	22
Distillers .....	—	—	1	—	—	—	—	—	—	—	1
Dock labourers.....	—	—	10	5	2	—	—	—	1	5	23
Drivers and carmen.....	—	—	4	5	—	2	—	1	—	2	14
Dyers and printers .....	—	5	3	5	5	1	2	—	—	4	25
Electroplaters .....	—	—	—	1	—	—	—	—	—	—	1
Engineers and fitters ....	1	5	16	16	15	16	4	6	4	13	96
Farriers .....	—	—	—	3	1	—	—	—	—	—	4
Fender and fireiron } makers .....	—	—	1	—	1	—	—	—	—	—	2
Fishermen.....	—	—	—	1	—	—	—	—	1	—	2
Flax, linen, and jute } hands.....	—	4	8	12	10	3	2	4	3	10	56
Floor cloth and mat } makers .....	—	—	2	2	—	—	—	—	—	—	4
Fustian cutters.....	—	—	1	—	—	—	—	—	—	—	1
Gardeners.....	—	—	1	—	—	—	—	—	—	—	1
Gaswork men .....	—	—	2	1	—	—	—	—	—	3	6
Glass makers.....	—	1	4	1	2	2	6	1	6	8	31
Gun makers .....	—	—	—	1	—	—	—	—	—	—	1
Hardware makers.....	—	—	—	1	—	—	—	—	—	2	3
Hatters .....	—	—	—	—	—	1	—	1	—	2	4
Hinge makers .....	—	—	—	—	—	—	—	1	—	—	1
Horseshoe makers .....	—	—	1	—	—	—	—	—	—	—	1
Hosiery hands .....	1	2	3	1	3	—	—	—	3	1	14
Indiarubber workers ....	—	—	1	—	—	—	—	—	—	—	1
Iron workers.....	1	10	15	19	10	20	12	4	16	20	127
Lace hands .....	—	2	—	1	2	—	—	—	1	2	8



TABLE II—*Contd.*

Trade.	'70.	'71.	'72.	'73.	'74.	'75.	'76.	'77.	'78.	'79.	Total.
Labourers (general) .....	—	2	1	—	—	1	—	1	1	—	6
Lath splitters .....	—	—	—	1	—	—	—	1	1	—	3
Leather workers and } tanners .....	—	1	3	1	—	—	—	1	1	—	7
Lockmakers .....	—	1	2	—	—	1	1	—	—	—	5
Maltsters .....	—	—	—	—	1	—	—	—	—	—	1
Masons .....	1	2	13	16	18	22	21	17	29	12	151
Military clothing makers .....	—	—	—	1	—	—	—	—	—	—	1
Millers .....	1	—	—	3	1	1	1	—	—	—	7
Miners (metallic) .....	1	—	7	4	2	2	1	2	2	4	25
Nail and chain makers .....	2	1	3	10	2	2	2	8	4	5	39
Navvies .....	—	—	4	1	—	—	—	—	1	—	6
Needle makers .....	—	1	—	—	—	—	—	—	—	—	1
Nut and bolt makers .....	—	1	1	2	2	1	2	1	—	—	10
Officials .....	—	1	3	—	—	—	—	—	—	—	4
Painters .....	—	—	3	5	10	6	18	6	6	3	57
Paperhangers .....	—	—	—	1	—	—	—	—	—	—	1
Paupers .....	—	—	—	—	—	—	—	—	—	2	2
Paviors .....	—	—	—	—	—	—	—	1	—	—	1
Pinmakers .....	—	—	—	2	—	—	—	—	—	—	2
Pipe and tube makers .....	—	—	2	—	1	2	—	—	—	1	6
Plasterers .....	—	1	3	5	2	8	2	5	6	7	39
Plumbers .....	—	—	2	6	3	5	3	—	5	4	28
Porters .....	5	—	2	—	—	—	—	—	—	1	8
Potters .....	—	1	1	—	—	—	—	3	4	1	10
Printers and compositors .....	—	—	8	2	5	3	3	1	1	1	24
Professionals .....	—	—	—	1	—	—	—	—	—	—	1
Quarrymen .....	—	4	6	6	4	3	4	4	6	—	37
Railway and telegraph } employés .....	—	3	5	5	—	—	3	1	3	2	13
Ropemakers .....	—	1	—	2	3	1	2	—	—	—	9
Saddlers and harness } makers .....	—	2	2	3	5	4	3	—	—	—	19
Sailors .....	1	—	4	2	1	1	—	—	2	2	13
Sailmakers .....	—	—	1	2	—	—	1	—	—	—	4
Sawyers and wood } cutters .....	—	—	3	—	3	1	—	1	—	—	8
Shipbuilders .....	—	6	8	14	19	14	11	9	6	13	100
Shopkeepers .....	—	—	2	—	—	—	—	—	—	—	2
Shoe and bootmakers .....	1	3	20	25	7	6	7	3	4	6	82
Silk hands .....	—	—	6	1	1	—	—	1	—	—	9
Skinner's .....	—	—	—	—	1	—	—	—	—	—	1
Slaters .....	—	2	4	5	8	6	1	7	3	4	40
Spring makers .....	—	—	—	—	1	1	—	—	—	—	2
Stone cutters and } polishers .....	—	1	—	—	1	—	1	2	—	3	8
Tailors .....	1	—	7	17	11	10	15	4	3	3	72
Tinplate workers .....	—	—	2	4	2	—	5	2	—	4	19
Tobacco pipe makers .....	—	—	—	—	1	1	—	—	1	—	3
Tobacco spinners .....	—	—	—	—	—	—	—	—	—	1	1
Trunk makers .....	—	—	—	—	—	1	2	—	—	—	3
Umbrella makers .....	—	—	—	1	—	—	—	—	—	—	1
Wheelwrights .....	—	1	—	—	1	—	1	—	—	—	3
Whitesmiths .....	—	1	1	—	2	—	—	—	—	—	4
Wire workers .....	—	—	1	1	1	—	1	—	—	3	7
Zinc workers .....	—	—	—	—	—	1	—	—	—	—	1

In this somewhat long list the colliers figure in a rather unenviable manner for 314, which, while we bear in mind that they form a very large body of workmen, amounting to 500,000 in round numbers, is out of proportion to the strikes in other trades. While dispassionately searching for and reviewing the causes that lead to so many coal mining disputes, one cannot but be struck with the fact, that colliers, more than any other class of workmen, appear to live in a chronic state of excitement as to the wages question, and that there seems to be a perpetual distrust between the employed and employers. I simply state the circumstances as I find them recorded in the public papers, which anybody can read for themselves; and these records are of a continuous succession of restless advice and inflammatory speeches, made by those who assume the control of the colliers' policy in Great Britain. As to whether the colliers are to be envied or pitied for thus being drilled into a perpetual state of industrial warfare, I offer no opinion, my wish, as far as possible, in this paper, is to try and get at facts and figures. Grouping the subdivisions into more compact bodies, we find the following results as to the industries engaged in strikes:—

TABLE III.

Building trades .....	598
Metal trades .....	390
Colliers and miners.....	339
Textile trades .....	277
Clothing trades .....	163
Ships and shipping.....	140
Pottery and glass trades.....	63
Wood trades .....	63
Stone trades (not masons).....	54
Food and drink trades .....	39
Carrying trades .....	35
Carriage building trades .....	33
Leather trades (not shoes) .....	28
Fibre trades.....	22
Agricultural trades.....	18

The building trades, which head this list with the formidable number of 598, are composed of a good many sections, which have separate organisations and interests, and yet which seem to follow, as by an irrepressible impulse, the infectious habit of striking. They comprise masons, carpenters and joiners, slaters, bricklayers, plasterers, plumbers, builders' labourers, with certain minor occupations; and it is not unnatural to find all these branches in an unsettled state under certain conditions of trade. The carpenters and joiners have the proud distinction of being the most restless, there having been 187 strikes under this head; and next to them come the masons, with 151. There are several reasons which may

account for the building trades striking so often:—1st. It is a class of industry which feels almost instantaneously the ups and downs of trade depression or revival. 2nd. The employers are, as a rule, men of but moderate means, and in a great many cases men who have emerged more or less recently from the ranks of the employed. Capital being short, and speculative building being rife, it is not a matter of surprise that extreme cutting should be practised in the matter of wages, and that disputes should frequently happen between two classes of men so little divided from each other by position. Of course there are giants in the building trade, as in all others; to them these remarks will not apply; but the great majority of building strikes have happened amongst the rank and file of employers; and this fact will also seem as a reason why, as a rule, the building strikes are not only soon settled, but also much more frequently in favour of the men than in other trades. 3rd. The inequality of wages may be also a reason as to the frequency of these disputes. At the time of the Manchester joiners' strike, in 1877, they were paid  $8\frac{1}{2}d.$  per hour, whereas in Liverpool the wages at the same time were  $8\frac{1}{4}d.$ , at Bradford  $8d.$ , at Lincoln  $7\frac{3}{4}d.$ , at Lancaster  $7d.$ , at Cambridge  $6\frac{1}{2}d.$ , at Gloucester  $6d.$ , at Winchester  $5\frac{1}{2}d.$ , at Frome  $4\frac{3}{4}d.$  The amount of labour being the same, and the prices of living being so little different in all these towns, it is a natural feeling that the lower-waged should seek to be on a little better level with the higher-waged. The next point of interest, though we cannot call it one of very much importance, is as to the localities in which strikes abound. It is to be expected that the greatest number of strikes would be found in the largest industrial centres; and this is true to a great extent, though at the same time some industrial towns with large populations are much freer from strikes than others, proving that certain trades which affect those towns are not so much given to strikes. But throughout England and Scotland the value of the special industry figures is a good deal detracted from by the perpetual recurrence of the building strikes, which may happen in a little town like Margate just as they do in Glasgow or London. I will first of all give a sort of strike chart by counties, taking Scotland, Ireland, and Wales each as one.

TABLE IV.

		Character of Trades.
Scotland .....	473	} Coal, iron, textiles, shipping
Yorkshire .....	388	
Lancashire .....	149	
Northumberland .....	138	} Coal, iron, shipping
South Wales .....	135	
Durham .....	131	
Staffordshire .....	80	Coal, iron, hardwares, pottery
Ireland .....	65	Linen, shipping
Middlesex .....	58	Metal, wood, decorative trades
Warwickshire .....	52	Coal
Gloucestershire .....	51	Shipping, agriculture
North Wales .....	40	Coal, iron, mining
Monmouthshire .....	33	} Coal, iron, shipping
Cumberland .....	32	
Nottinghamshire .....	30	} Coal, textiles
Derbyshire .....	28	
Cheshire .....	26	Shipping, agriculture
Worcestershire .....	24	Coal, iron
Devonshire .....	24	Mining, shipping
Leicestershire .....	23	Coal, textiles
Kent .....	20	} Agriculture
Cambridgeshire .....	19	
Suffolk .....	11	Agriculture, textiles
Northamptonshire .....	11	Mining, leather
Liverpool .....	10	Iron, agriculture
Norfolk .....	9	Agriculture
Hampshire .....	5	„ shipping
Salop .....	4	„ mining
Westmoreland .....	4	Mining
Sussex .....	3	Agriculture
Essex .....	1	„

The most noteworthy feature in the foregoing list is the extraordinary prevalence of strikes in Scotland, which, with the exceptions of the counties of Lanark, Roxburgh, Ayr, Forfar, and Fife, has no industrial population to compare with those of the same character in England. A large proportion of the Scotch strikes are in the coal mining, and I must confess that I cannot dissociate these particular strikes from the policy of the individuals to whom I have alluded before, who claim to direct this organisation, and whose particular aim it seems to be is to prevent any possibility of unanimity or friendly feeling growing up between masters and men. At the same time, I cannot find that the same important influence exists in the case of other Scotch strikes, and am quite unable to give any reason for their frequency. It would be tedious to detail every place in which a strike has occurred during the ten years, and I content myself therefore with specifying the principal ones.



TABLE V.

		Character of Trades.
Glasgow .....	85	Shipping, textiles, railway works, chemicals
Leeds .....	73	Iron, coal, cloth, flax
Sheffield .....	66	Coal, iron, glass, cutlery
Edinburgh and Leith .....	65	Shipping, milling, printing
Newcastle .....	63	„ coal, iron, glass, chemicals
London .....	56	„ general industries
Barnsley .....	48	Coal, iron, linen
Dundee .....	46	Shipping, linen, and jute
Merthyr .....	45	Coal, iron
Manchester .....	44	Cotton, silk, coal, iron, engineering
Bolton .....	43	„ coal, engineering
Sunderland .....	42	Shipping, coal, glass
Birmingham .....	36	Hardwares, iron
Bradford .....	36	Stuff and worsted
The Tyne .....	30	Shipping, coal, glass, chemicals
Nottingham .....	30	Lace, silk, coal
Liverpool .....	29	Shipping, engineering
Barrow .....	29	„ iron, jute
Oldham .....	28	Cotton, engineering
Dudley .....	28	Coal, iron, nails
Huddersfield .....	27	Woollens
Bristol .....	26	Shipping, coal, leather
Belfast .....	26	Linens, shipping
Shields .....	24	Coal, shipping
Blackburn .....	24	Cotton
Middlesbrough .....	22	Iron, shipping, engineering
Derby .....	22	Woollens
Forest of Dean .....	21	Iron, coal
Ashton .....	21	Cotton
Dublin .....	19	Shipping, general trades
Wolverhampton .....	19	Iron, coal, hardwares
Rotherham .....	19	Coal, iron
Greenock .....	18	Shipping, sugar refining
Preston .....	17	Cotton
Hartlepool .....	16	} Shipping, iron
Stockton .....	16	
Wigan .....	16	Textiles, coal, iron
Hull .....	16	Shipping, engineering
Potteries .....	16	Pottery, coal, iron
Aberdeen .....	16	Shipping, quarries, woollens
Cleveland .....	15	Mining, iron
York .....	14	General
Perth .....	14	Dyeing, woollens
Bunbury .....	13	Cotton, coal
Alloa .....	13	Glass, pottery, linen
Birkenhead .....	13	Shipping, engineering
Carlisle .....	13	Hats and caps, cotton
Cardiff .....	13	Shipping, iron, coal, tinplate
Leicester .....	13	Hosiery, coal
Dumfries .....	12	Woollens
Halifax .....	11	Cloth, worsted
Whitehaven .....	10	Shipping, mining, coal
Plymouth .....	10	„ quarries
Neath .....	10	Copper, iron, coal

In addition to this list, there are 87 towns which have experienced strikes varying from 1 to 9, of which there is no occasion to give any detailed account. The next point to which I would briefly direct attention, is the duration of time which these 2,352 strikes have lasted. Although in nearly half of them I have been able to ascertain the time which was wasted, in the remaining portion, viz., 1,256, there is nothing to guide us, so that I think we are warranted in giving each of them a duration of one week only. Some may have lasted more, and some less, but in the latter case we are quite safe in assuming that the work of that week was first broken into and destroyed. The following table gives the time each year spent in strikes :—

TABLE VI.

	Weeks.
1870.....	68
'71.....	279
'72.....	988
'73.....	1,093
'74.....	812
'75.....	684
'76.....	952
'77.....	759
'78.....	1,621
'79 (up to 1st December) .....	1,774
Total .....	<u>9,027</u> weeks or 54,162 working days.

The durations of strikes are frequently of very considerable length, and one can only account for them either by supposing that the strike allowance is of so comfortable a nature, that the striker really does not care whether he works or not, or that the object to be gained is considered to be sufficiently valuable to repay the great sacrifice of time and money. The following are some of the principal durations of strikes since 1870 :—

TABLE VII.

Trades.	Towns.	Weeks.	Years.
Carpenters and joiners ....	Heywood .....	28	1872
	Wolverhampton .....	27	'77
	Manchester .....	52	'77
	Dunfermline.....	40	'78
	Hartlepool .....	34	'78
	Shields .....	34	'78
Tailors.....	Merthyr .....	27	'74
	Blanafeon .....	47	'75
	Aberdeen .....	57	'75
	Bradford .....	20	'78
Dock labourers .....	Shields .....	23	'73

TABLE VII—*Contd.*

Trades.	Towns.	Weeks.	Years.
Colliers .....	South Wales.....	21	1875
	Burnley.....	26	'76
	Dronfield .....	36	'77
	Pembrokeshire .....	28	'76
	Kinneil .....	26	'78
	Church Lane .....	36	'78
	Manvers Main .....	26	'78
Iron workers .....	Wishaw .....	20	'73
	Middlesbrough.....	29	'73
	Parkgate .....	22	'75
	Aberdare .....	26	'79
	Bradford .....	36	'79
Ship builders .....	Glasgow .....	20	'70
	Dumbarton .....	28	'76
	Runcorn .....	26	'76
	Glasgow .....	23	'77
Glass workers.....	Sunderland .....	26	'76
	Glasgow .....	33	'76
	Alloa .....	56	'78
	London .....	33	'77
Masons .....	Newcastle .....	24	'78
	Kirkcaldy .....	36	'78
	Wigan .....	30	'79
	Barnsley .....	31	'79
Spring makers .....	Sheffield .....	28	'75
Tin plate workers .....	Edinburgh .....	33	'79
Engineers .....	Newcastle .....	21	'71
	Ashton .....	22	'79
	Belfast .....	26	'79
Railway men .....	Taff Vale .....	25	'76
Tobacco spinners .....	Newcastle .....	24	'79
Plumbers .....	Nottingham .....	38	'78
	Darlington .....	37	'76
Compositors .....	Dublin .....	31	'78

The two next points to be examined are unfortunately the most disappointing in the whole inquiry, viz., the numbers engaged in these strikes, and the results of the strikes. It is obvious that unless we can form some approximate idea of the numbers of men who are idle in any particular dispute, we can give a very poor estimate as to the amount of money lost, and the same may be said as to the results. Those results which I have been able to collect are, on the face of them, unfavourable to the strikers; but in taking this view, we must not forget that many a successful strike entails far greater advantages than the mere fact of the strike shows, as a small section of a trade may fight a battle for the whole trade, and by winning it obtain very considerable pecuniary results extending over a long period. The number of strikes of which I have been able to ascertain any results for certain are ridiculously few, and bear no reasonable proportion to the bulk of the disputes. Such as they are, however, I give them.

TABLE VIII.

	Number of Strikes.	Lost.	Won.	Compromised	Accounted for.	Unknown.
1870 .....	30	1	8	2	11	19
'71 .....	98	5	10	11	26	72
'72 .....	343	6	8	8	22	321
'73 .....	365		No	details		365
'74 .....	286		No	details		286
'75 .....	245	23	17	9	49	196
'76 .....	229	24	15	16	55	174
'77 .....	180	15	7	10	32	148
'78 .....	268	43	3	15	61	207
'79 .....	308	72	3	20	95	213
Total ...	2,352	189	71	91	351	2,001

Meagre and almost useless as this list is for deducing facts from, it shows nevertheless that of the results really known, the balance is very considerably against the strikers, and also, that there is an increasing tendency to compromise, which is so far a hopeful sign, which may soon lead to an agreement before the battle has commenced. The cases in which the numbers actually engaged are given are also, I regret to say, very few, though perhaps they are sufficiently definite for us to form some idea of what those particular strikes cost in actual loss of wages. The following table is one of 110 strikes in which the numbers engaged and the duration are based on reliable facts. I have estimated the loss on wages as the daily loss of 4s. for five days in the week, and considering that in the ten years we have had the maximum and the minimum of wages, and considering also that men, women, and children are all implicated in the strikes, I do not think that I have placed the average wage too high.

TABLE IX.

Date.	Trade.	Locality.	Duration in Weeks.	Numbers.	Loss.
					£
1870	Nailers .....	Netherton .....	1	600	600
'70	Cotton operatives .....	Wigan .....	1	3,000	3,000
'70	Colliers .....	Vron .....	1	600	600
'70	Miners .....	Cleveland ... ..	2	1,500	3,000
'70	Joiners .....	Glasgow .....	4	1,400	5,600
'70	Waggon builders .....	Saltley .....	4	200	800
'71	Colliers .....	Hanley .....	1	400	400
'71	Shoemakers .....	Rotherham .....	6	1,500	9,000
'71	Cotton spinners .....	Perth .....	1	500	500
'71	Pottery pressers .....	Stoke .....	1	240	240
'71	Colliers .....	Butterley .....	1	2,000	2,000
'71	Railway men .....	L. Y. R. ....	1	160	160



TABLE IX—*Contd.*

Date.	Trade.	Locality.	Duration in Weeks.	Numbers.	Loss.
					£
1871	Telegraph clerks .....	Manchester .....	1	200	200
'71	Engineers .....	Sunderland .....	3	3,000	9,000
'71	Glass workers .....	" .....	1	500	500
'71	Engineers .....	Newcastle .....	20	9,000	180,000
'71	Cotton hands .....	Oldham .....	1	35,000	35,000
'71	Nut and bolt makers .....	Smethwick .....	40	1,500	60,000
'71	Colliers .....	South Wales .....	12	18,000	216,000
'71	" .....	Forest of Dean .....	11	700	7,700
'71	Iron workers .....	Leeds .....	1	1,700	1,700
'71	Colliers .....	Sheffield .....	1	300	300
'71	Joiners .....	Darwen .....	2	200	400
'71	Bakers .....	London .....	9	400	3,600
'72	Saucer makers .....	Longton .....	9	400	3,600
'72	Hosiery .....	Nottingham .....	14	700	9,800
'72	Linen weavers .....	Banbury .....	11	1,700	18,700
'72	Printers .....	Edinburgh .....	7	600	4,200
'72	Engineers .....	Sheffield .....	2	600	1,200
'72	Moulders .....	Keighley .....	4	2,500	10,000
'72	Carters .....	Liverpool .....	1	5,000	5,000
'72	Steamboat men .....	M. S. L. R. .....	1	100	100
'72	Railway men .....	Glasgow .....	1	1,300	1,300
'72	Dock labourers .....	Hull .....	1	600	600
'72	Building operatives .....	London .....	12	10,000	120,000
'72	Shoemakers .....	Norwich .....	1	600	600
'72	Engineers .....	Birkenhead .....	6	800	4,800
'72	Railway men .....	L. N. W. .....	2	400	800
'72	Colliers .....	Ryhope .....	1	2,000	2,000
'72	Engineers .....	Glasgow .....	1	500	500
'72	" .....	N. B. R. .....	1	400	400
'72	Colliers .....	South Wales .....	1	2,000	2,000
'72	Miners .....	Cleveland .....	1	700	700
'73	Colliers .....	South Wales .....	11	70,000	770,000
'73	" .....	Bedworth .....	2	500	1,000
'73	Linen hands .....	Barnsley .....	25	1,500	37,500
'73	Colliers .....	Wishaw .....	10	1,000	10,000
'73	Iron workers .....	Clarence .....	1	600	600
'73	Plasterers .....	Leeds .....	1	200	200
'76	Joiners .....	Southampton .....	1	300	300
'77	Masons .....	London .....	33	1,700	56,100
'78	Cotton hands .....	Lancaster .....	9	300,000	2,700,000
'78	" .....	Macclesfield .....	3	700	2,100
'78	" .....	Glasgow .....	2	1,200	2,400
'78	Colliers .....	Aldwark .....	1	350	350
'78	" .....	Bestwood .....	9	2,000	18,000
'78	" .....	Park Gate .....	1	250	250
'78	" .....	Rawmarsh .....	15	250	3,750
'78	" .....	Unstone .....	1	160	160
'78	" .....	Leeds .....	11	2,000	22,000
'78	" .....	Denaby Main .....	10	700	7,000
'78	" .....	Chadderton .....	1	1,700	1,700
'78	" .....	Manvers Main .....	26	1,000	26,000
'78	" .....	Kippax .....	4	2,000	2,000
'78	" .....	Rosa .....	1	700	700
'78	" .....	Thorp Gawber .....	1	700	700
'78	" .....	Wednesbury .....	1	300	300

TABLE IX—*Contd.*

Date.	Trade.	Locality.	Duration in Weeks.	Numbers.	Loss.
					£
1878	Colliers .....	Harrington .....	1	200	200
'78	" .....	Eddlewood .....	1	300	300
'78	" .....	Seaham .....	1	150	150
'78	" .....	Rother Vale .....	1	300	300
'78	" .....	Pemberton .....	1	500	500
'78	" .....	Bristol .....	12	500	6,000
'78	" .....	Stourport .....	2	200	400
'78	" .....	Spon Lane .....	4	750	3,000
'78	Moulders .....	Boroughbridge .....	1	120	120
'78	Joiners .....	Bolton .....	16	200	3,200
'78	" .....	Aberdeen .....	1	500	500
'78	Nailers .....	Staffordshire .....	10	25,000	250,000
'78	Navvies .....	Hartlepool .....	1	400	400
'78	Painters .....	Liverpool .....	10	1,600	16,000
'78	Plumbers .....	Edinburgh .....	9	200	1,800
'78	Railway men .....	N. B. R. .....	15	900	13,500
'78	Silk hands .....	Macclesfield .....	1	4,000	4,000
'78	Tailors .....	Bradford .....	20	200	4,000
'78	Cotton hands .....	Macclesfield .....	4	1,600	6,400
'78	" .....	Oldham .....	5	5,000	25,000
'78	" .....	Leigh .....	4	500	2,800
'78	" .....	Todmorden .....	1	150	150
'78	" .....	Bristol .....	6	2,000	12,000
'78	" .....	Radeliffe .....	5	2,000	10,000
'78	" .....	Rhodes .....	1	150	150
'78	" .....	Glasgow .....	2	400	800
'78	" .....	Daubhill .....	1	1,000	1,000
'78	" .....	Oldham .....	4	10,000	40,000
'79	" .....	Carlisle .....	22	600	600
'79	" .....	Ashton .....	5	5,000	25,000
'79	" .....	Macclesfield .....	7	1,000	7,000
'79	" .....	Stockport .....	2	400	800
'79	" .....	Gorton .....	2	1,500	3,000
'79	Waggon builders .....	Liverpool .....	4	500	2,000
'79	" .....	Manchester .....	13	1,000	13,000
'79	Building operatives .....	Wigan .....	2	500	10,000
'79	" .....	Northallerton .....	1	400	400
'79	Chemical workers .....	Widnes .....	17	5,000	85,000
'79	Flax hands .....	Forfar .....	4	1,000	4,000
'79	Colliers .....	Aberdare .....	1	2,000	2,200
'79	" .....	Tyldesley .....	1	1,200	1,200
'79	Masons .....	Bristol .....	8	1,000	8,000
'79	Joiners .....	" .....	2	1,000	2,000
'79	Ship builders .....	Tyne .....	3	8,000	24,000
			577	—	4468,950

To this sum we may add a few totals of well-known strikes, which I have taken at the time from the public papers, viz., the engineers' strike of London during 1879, which is said to have cost 28,875*l.*; the Clyde shipbuilders' strike of 1877, which cost 300,000*l.*; the Longton colliers' strike of 1878, which cost 30,000*l.*; and the Durham miners' strike of 1879, on which 240,000*l.* is said to have

been lost, swelling the total amount to 5,067,825*l.* This being the sum lost in 114 strikes, what are we to say for the losses on the remaining 2,238? As we have no figures to go upon, it is impossible to form even an estimate, though the sum must clearly be a very enormous one. Mr. Howell, to whose recent paper in "*Fraser's Magazine*" I have already alluded, puts as an asset in favour of the men on strike a sum averaging about 10*s.* per week, which they received as strike pay, and this of course would amount to many thousands to be put to their credit. But I fail to see by what right he can call this sum in any degree a set-off, or even partial set-off, to the losers, except indeed that portion of the strike fund which may have been contributed by other sections of trades or the public for the maintenance of the men on strike. Unless I am wrong in my conjectures, the strike fund has been contributed to the trade society by the men themselves, and the payment to them of so much when on strike, is really only giving them back their own money, which, were there no strikes, would be accumulating, to be spent in what we may hope would be a more profitable manner. Mr. Howell seems to be right, in my opinion, in putting forward a statement, that many a strike, though resulting in the expenditure of a large sum of money at the time, has resulted also in the gain of a more or less permanent advantage to the great body of the trade. I think, however, that he has considerably exaggerated both the permanence and the amount of these benefits, even when the strikes have been successful; but my own observations find this to be so seldom the case comparatively, that I cannot help thinking the many losers far outbalance the few gainers.

Whatever these losses or gains may be, we must remember that they are, after all, only those of the employed, and that in calculating or considering the results of strikes to the country, the employed only form one part of the social economy. Who is to gauge the individual losses to the masters? To estimate these would be impossible, for very few employers would care, perhaps, to make the amount of their losses known, even if they could estimate them themselves, which would not be an easy task, and especially during prolonged strikes. There are doubtless many cases in which employers, and particularly those who have not much capital, might welcome, or at all events not disapprove of, a strike, as being the means of relieving them from a losing contract, or freeing them from the obligation of paying higher wages than they can afford. It is better, they may say, to keep the works idle, than make a loss on each day's production. On the other hand, idleness of a mill, factory, ironwork, or colliery, means not only unprofitable capital for the time, but a very serious depreciation of plant and machinery; not to mention the chances (and very probable ones) that the customers

will go elsewhere for what they want, and will perhaps never return. Let us think, too, of the deterioration of house property in all neighbourhoods which have been the subject of a great strike; of the dwellings uncared for and left without tenants; of the rents unpaid; of the shopbills in arrear; of the tradesmen left with heavy legacies of debt; of the accumulating poor rates; of the deteriorated physique; the illness, and the consequently lessened labour value of the workmen, and their wives and families. Nor must we omit to take cognizance of the cases in which a whole industry has been driven away to more kindly localities. Trade is, after all, but a tender plant, which will not survive many rude shocks; and more than one instance has happened, in which it has been completely scared away from the neighbourhood. The Thames shipbuilding at Millwall is a well known instance of this, the still idle yards standing even now as a monument of the perversity and folly of those who once gained their livelihood in them, while Sheffield, Dundee, and other industrial towns can bear witness to similar occurrences, where capital and machinery have been transplanted to foreign countries, in which labour was more pliable than at home. I believe that if all these results could be put into figures, they would double and treble the actual losses of wages, though it is impossible to do more than allude to them in this general manner.

Whatever the figures that I have been able to bring forward this evening may be worth, they at all events show what a terrible cancer we have got in the midst of our industrial body, and should make all earnest and thinking men set vigorously to work to see what can be done to lessening the evil. Strikes have been discussed, and remedies proposed to any amount within the last few years, but we seem to get no nearer the solution of the difficulty. I may perhaps be permitted to add my contribution to the subject, feeling that, at all events, its importance warrants any suggestions. Many people have a firm belief in arbitration as the best settlement of the vexed question. I confess that, looking back on the results of arbitration, I do not share in that belief, but think that the success of arbitration is far too doubtful to seek the remedy in that direction. Arbitration has been treated in so fast and loose a way, and has been so often played with, that it has lost all its dignity and respect. Striking has been made a business of by the workman, and it has become an institution in the country. I would make also the treatment of strikes an institution, so that those who commence the quarrel should know what they would have to expect. It would not be amiss perhaps to glance at our neighbours in France and Belgium, and see what results their *Conseils des Prud'hommes* have produced. I find that in France, previous to the Franco-German war, the number of cases that came before these tribunals were very



large, viz., 43,807 in 1860, and 45,001 in 1868. After the war they decreased, being 29,913 in 1873; and since that year they have gradually increased to 31,244 in 1874, 33,907 in 1875, 34,774 in 1876, and 35,046 in 1877.

Of this number, 25,834 cases were heard before the councils in private, and a reconciliation was effected in 18,415 cases, or 71 per cent. 7,419 could not be conciliated, and were remitted for hearing by the General Council, while 9,076 quarrels were settled outside the court. As to the causes of dispute, 21,368 or 61 per cent. were relative to wages, 4,733 or 14 per cent. to dismissals, and 1,795 or 5 per cent. to apprenticeship cases. These councils, it must be remembered, not only settle disputes between the masters and the men, but also between the men themselves. In Belgium we find the results of their operations as follows :—

TABLE X.

	Cases Heard.	Cases Conciliated.	Cases Heard before the General Council.	Cases Settled between the Parties.
1862 .....	2,761	2,345	179	201
'63 .....	3,037	2,552	200	207
'64 .....	3,317	2,759	221	214
'65 .....	3,382	2,712	419	326
'66 .....	2,999	2,425	403	340
'67 .....	3,234	2,535	452	384
'68 .....	3,494	2,646	581	251
'69 .....	3,323	2,474	543	291
'70 .....	3,536	2,687	579	242
'71 .....	3,368	2,517	426	392
'72 .....	3,330	2,492	497	304
'73 .....	3,526	2,701	594	224
'74 .....	3,638	2,815	580	220
'75 .....	4,158	2,750	578	494
'76 .....	3,823	2,738	267	432
'77 .....	3,854	2,866	305	656

These results in both countries appear to me to be exceedingly satisfactory, and I should wish nothing better than to see the establishment of similar legalised institutions in this country. Twelve council boards might be appointed for the various industrial centres, viz. :—

1. Lancashire, Cheshire, and Cumberland.
2. Yorkshire.
3. Northumberland and Durham.
4. Staffordshire, Warwickshire, and Worcestershire.
5. Nottinghamshire, Leicestershire, and Derbyshire.
6. North Wales and Shropshire.
7. South Wales and Monmouthshire.
8. Somersetshire and South West of England.
9. London and home counties.
10. Lanarkshire, Ayrshire, and South West of Scotland.
11. Fifeshire, Forfarshire, and East of Scotland.
12. Ulster.

Each board should be composed of an equal number, say ten each, of employers and employed, so that the various staple industries might be fairly represented, each member being regularly elected, like the School Board members, for a term of years, say three or five. The expenses of the board, which would only sit as often as required, might be met by a scale of fees, based upon the amount in dispute. My own belief is, that, if a wages quarrel arose in the district, which could not be settled amicably at first hand between the parties, and that if this dispute was obliged to come before the board for hearing, each party to contribute beforehand a sum in proportion to the amount in question; a great many disputes would be nipped in the bud. To strike costs nothing in the way of preliminary expenses; but when a certain round sum had to be paid down before the necessary hearing could be obtained, it might, and I think would, considerably modify the state of affairs. A superior board of appeal should be constituted for the whole kingdom, consisting of twenty-four members, one employer and one employed out of each district board. The decisions of the boards, not being self-constituted or voluntary, would carry legal weight with them, and should be enforced just in the same way as the orders of a magistrate or judge. I believe that under some such arrangement as this, a vast number of disputes would never come to the stage of publicity at all—and that the great majority of those that did come for hearing would be settled by the board, the very composition of which could not fail to inspire confidence in the minds of the disputants. Of course, circumstances might arise, in which a body of men might decline to abide by the decision of the district board, and even of the after decision of the superior board. In that case, the strikers would be in the position of men who had simply outlawed themselves by not obeying the laws of the country, and should be dealt with, if necessary, as such. I say, if necessary, for this reason: a disputant or a body of disputants would probably not go on with their work (although they might do so) until the case was fairly settled by the superior court. If decided in a way by which they declined to abide, their only alternative would be to leave their work and let the masters fill up their places as best they could, without attempt at interference or molestation of any kind. The least approach to this, either by moral suasion or physical force, should be most stringently punished. Some plan such as this appears to me the most likely to work with reasonable smoothness; at all events, I offer it for what it is worth. Unsatisfactory in many ways as are my data, I think they are full enough to show the gravity of the complaint, and that the subject is one which may well invite the discussion of the Statistical Society.

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## DISCUSSION on MR. G. P. BEVAN'S PAPER.

THE CHAIRMAN (Sir Rawson W. Rawson), in inviting discussion on the paper, said that particular attention ought to be devoted to the suggestion of the author as to the *Conseils des Prud'hommes*. There was no doubt that if there were constituted bodies to arbitrate in these matters, their decision, coming from a body not appointed for a special case, but a permanent body, consequently likely to be disinterested, and numerically stronger than one or two or even three arbitrators, would be likely to influence both the contesting parties more than the decision of arbitrators had hitherto done. That was the practical point of Mr. Bevan's paper; but upon the other points, which the author had not been able fully to elucidate, some gentlemen present might be able to supply interesting and useful information.

MR. THEO WOOD BUNNING, Secretary of the Northumberland and Durham Coal Owners' Associations, said that having been asked to attend the meeting to hear the paper read on the strikes of the last ten years, he had accepted the invitation with pleasure, as having been actively engaged in some of the largest of them, he had gained considerable experience in these matters.

Before making any remarks upon the general questions of strikes, he desired to point out an important error in the paper. The miners of Northumberland did not strike against Mr. Herschell's award, but, on the contrary, both the owners and men of Northumberland and Durham had at all times loyally accepted all awards made by umpires. He also deprecated the tone of some parts of the paper, for all such expressions as "the owners seized their opportunity," were improper. In discussing matters of this kind, any slighting remarks, whether from the one side or the other, did an immense amount of injury to the efforts of those who were loyally attempting to promote friendly relations between capital and labour.

He further stated that the experience gained in his connection with trades unions, of upwards of thirteen years, had resulted in his becoming convinced that men of all classes have pretty much the same passions, and have a pretty equal percentage of reasonable and unreasonable men amongst them; and that they all have the same common lever by which they can be moved, namely, "self interest;" and the reason that self interest does not operate in preventing strikes is that each party is unable to measure and allow for the interests of the other.

This became very apparent during a strike that took place in 1866, at a shipyard on the Tyne, where the men were actually on strike because they wanted to work a certain supposed fewer number of hours than was the custom, whilst in fact they were actually working fewer hours than they were asking for. The men

wanted to work nine hours a day, while through men being off work on Mondays and other times, for their own pleasure, the average number of hours worked per man was only about eight and a half.

It is evident here the owners might reasonably have said that if they were guaranteed nine hours a day, it would be worth their while to close every day after that number of hours had been worked, and this seemed so reasonable, that the wonder is that both sides did not see it, and mutually help each other in carrying it out; and it immediately occurred to him (Mr. Bunning), that if the owners and the men formed separate organisations to meet together and discuss their several necessities, that half of the difficulties connected with the relationship between capital and labour would be at an end.

He did not think, from the nature of things, that strikes would ever cease, but he did think that the number of them could be much diminished, and those that must take place reduced to questions which scarcely any other means could determine.

It might as well be said that domestic quarrels would cease, or that merchants could be compelled, by awards or acts of parliament, to continue to sell their goods to any given man at a loss. There must be absolute freedom and perfect equality between the contracting parties, and the bond that keeps them together must be mutual self interest. These remarks apply equally to capital and labour, the relations between which being precisely those between two merchants, the one selling and the other buying.

It has been premised that all classes of men have much about the same average of good and bad amongst them; but to compose this general average, there must be some who are more or less difficult to deal with, and strikes very often occur through men who have no grievance with their own employers, going out on strike out of sympathy for others who have left work on account of a quarrel started through the unreasonableness of other owners. This class of strike could be prevented by the formation of large associations of masters and men, where the average intelligence of the two bodies would have more chance of being developed and of directing the councils of all, so that there would be less difference between badly managed places, and so that an insubordinate workman would be more under the control of the better informed of his class.

The immediate effect of this arrangement is no doubt to drag down the best managed concerns somewhat, and to prevent workmen from individually bettering their condition, but in the end these defects will, if not disappear entirely, at least be considerably modified; besides, these large associations give stability to all arrangements mutually agreed upon, create precedent, and afford ample opportunity for each side ascertaining the wants and feelings of the other.

There are two great dangers however which beset these associations from the commencement of their existence: the one is that, formed as they are at first for the protection of the interest of their members, they are made use of by outsiders for political



purposes; and the second is, that they offer a convenient opportunity for advertising nostrums in the shape of political economy warranted to cure everything; but these dangers rectify themselves in the end, and the latter especially will die out from the very folly of the various panaceæ suggested.

It must not be for one moment supposed that it is intended that these remarks should apply to one side only, for they are equally applicable to both, and are made with the belief that there is the most absolute equality in the average good sense of all; and this, combined with mutual self interest, renders a joint discussion amongst all parties concerned the best means of solving difficulties.

To make these meetings successful, each side must be treated as perfectly on the same footing; there must be the most rigid politeness and cordiality observed, and there should be a total absence of all patronising lessons in morality on the one side, and of begging appeals to benevolence on the other.

Now it has pleased some to advert to the north as a country where disputes are frequent, and where there is an absolute ignorance of all political economy, and a total absence of all sympathy between the masters and the men.

His (Mr. Bunning's) experience was precisely the contrary; and he thought there was no district in Great Britain where more had been done to bring men and masters on one common platform of mutual interest than in Newcastle. In that town has been inaugurated the most important ameliorations in the relations between capital and labour, the most striking of which may be summed up as the joint committee, and the sliding scale: institutions which are rapidly becoming extended over England.

It is not averred that either of these institutions is perfect, or that they will become perfect, but it is fearlessly asserted that no two arrangements have done more to open the eyes of both sides to their mutual necessities; for instance, before the adoption of the sliding scale, could any miner be got to *believe*, that while coal was selling for 25s. a ton in London, and 15s. in some of the local dépôts, the coal owner was only getting 4s. 5d. a ton over an output of 26 million tons in the counties of Northumberland and Durham? but this has now become an acknowledged fact; the working of the sliding scale has thus done more to give the men an insight into the necessities of the owners, than worlds of political economy. Arbitration may also be said to be a child of the north; but it is one which certainly has not developed itself so rapidly, or done so much good, as the joint committee, and the reason is this: the umpire must of necessity be a man who has no direct interest at stake; but this does not necessarily prevent his having a personal bias, while it precludes him from having the least technical knowledge of the interests he is called upon to decide. The umpire may have a pet idea like restriction to advertise; he may have a peculiar training, which may cause him to exclude a certain class of evidence; he may have all, or a certain number of defects; but he never can have a perfect knowledge of the absolute wants of both sides, and this often causes mischievous awards. The men themselves are annoyed when a blundering verdict gives them all

their own way, foreseeing that the necessities of the case would soon assert themselves, and that arbitration would be swept away when the dam was let loose, and a struggle for existence commenced. Mistakes such as these can be cited, in which awards have screened men from a small reduction, at a period when a small reduction might have saved a trade from dire loss, and caused the men to have to submit to a reduction of over 20 per cent. a few months after.

His opinion was, that arbitration in its present form, where the arbitrator has full power to decide on matters deeply affecting the interests of large districts, was a great mistake; but combined with a committee of both the interested parties, who have already made concessions to each other, and narrowed the issue, it may be conducive of much good.

In conclusion, it will have been observed that the gist of all these remarks is to endeavour to prove the necessity of bringing masters and men to discuss their interests together, with a view of letting each know the necessities of the other; that the parties should meet and talk matters over with a view of narrowing the questions in dispute, leaving not the whole question, but the question so narrowed, to the umpire; in this way the umpire could not make any very improper award.

This is precisely the construction of the joint committee, where the two sides meet and discuss before the chairman their several cases, when it often happens that an arrangement is come to without having recourse to an umpire.

Mr. ALSAGER HILL said he rather agreed with the last speaker, that any strong language made use of in a matter of this sort was highly inexpedient. He submitted that the whole of Mr. Bevan's facts seemed to indicate that the phenomena of strikes were more of a "measly," than of a "cancerous" description. These phenomena of strikes were simply the result of the higher organisation of labour, bringing those diseases more rapidly to a head. Mr. Bevan himself had admitted that the net result of strikes had been, on the whole, satisfactory to the body of workmen of this country, in bringing about compromises in matters of dispute. He thought he was right in saying that the average condition of the industrial classes in England was never higher than it was at present, and even taking the international view, he did not think there was any part of the world in which a man could secure better reward for his labour than in England. As far as the building operatives were concerned, they came naturally to the front, and after them, the colliers. The latter class worked under more difficult conditions than almost any other class of men, and had less leisure than those who generally worked during the day time. He did not think, therefore, that any great value was to be laid on his friend's calculations with regard to any particular class of people on strike. Mr. Bevan seemed to have forgotten that it was only recently that the industrial classes of this country had had time to organise. The question was entirely one of general economic policy, and the main difficulty at present was the want of economic know-

ledge on the part of those who constituted the industrial classes. The number of strikes alluded to by Mr. Bevan had, in a great measure, resulted from a mere matter of organisation, because the leaders of these organised strikes were able to insist upon having that haggling in the market which, Mr. Bevan had said, lay at the root of the whole question. Mr. Bevan had shown that a large body of the most educated portion of the industrial classes in the north of England and in Scotland, had come to the conclusion that these particular contests were in their interest. He had in his possession the last report of the Glasgow Trades Council, which showed that the secretary was only paid 10*l.* a-year. Mr. Brassey some time ago expressed an opinion that the great body of the people who formed the industrial classes, had not seen their way to pay their own servants properly. So long as the secretary of such a body as the Trades Council of Glasgow was paid only 10*l.* a-year, so long it would be found that the more ignorant section, like colliers, would fight when they did not get what they thought were the market wages.

Mr. HOWELL said he had come rather to be a listener than a speaker. He felt with Mr. Bevan, that the more that was known about those subjects the better. He thought, however, that Mr. Bevan ought to be a little more careful in some of his facts. Mr. Bevan had asserted that strikes drove from the Thames the ship building industry. He (Mr. Howell) thought if there was any one thing that was proved to be wrong, it was that statement. Mr. Samuda, who was an authority on this subject, gave what he (Mr. Howell) should have thought a quietus to that statement, and Mr. Brassey had entered into statistics upon it, and it was well known to every trades unionist in London, that other causes had operated to drive the ship building from the Thames. There was one thing referred to by Mr. Bunning, namely, the difference of language used by speakers regarding the masters and the men. No one could find fault with the tone of Mr. Bevan's paper, but he (Mr. Howell) wished to note the difference with which he spoke of one very simple fact. He said, "I am happy to know that it will be discussed by an assembly which is so eminently calculated to do so judicially and dispassionately, free from the bias with which the employer naturally views the question, or from the intemperate spirit which so often characterises the disputants on the other side." He did not think it was intended by Mr. Bevan to say anything unkind with regard to the men, but he could assure him that all the "intemperance" did not belong to the workmen. He was speaking to a very large employer in the building trade a few days ago, who was chairman of the association in the district, and who had suffered from strikes. Referring to several strikes that had taken place recently, he said, "Are the men always in the wrong?" "Oh, no," he said, "my greatest difficulty is to keep some of the masters back. They would be getting up a strike every week if it was not for other employers that restrained them." That was to say, that there were intemperate spirits among the masters as well as among the men. If Mr. Bevan thought that he (Mr. Howell) wished to encourage strikes by the facts he brought out in "Fraser's



Magazine," the conclusion was a wrong one. He wanted to show that certain results followed from certain courses, and until it was known whether these results did or did not follow, they would not feel safe ground. He (Mr. Howell) did not intend to say that strikes were carried on because it paid the strikers to do so. What he endeavoured to convey was, that in the long run, having no other course open to them by which to adjust wages, strikes ultimately paid the men; and, moreover, that it was often the only way they had open to them to get out of the difficulty. The men were not always to be blamed for causing a strike. If the master attempted a reduction, and the men struck against this reduction, the one who was originally the cause of the quarrel seemed to be in the wrong, unless circumstances showed that he was justified in taking that step. Although it was stated that a certain course of action would pay, that did not prove that the action was right. Any one who had read the report on loan mongering with foreign States, could not but say that it paid somebody to enter very largely into that business. He did not say that strikers were to be brought to that level; but he did say that, having no other recognised means of adjusting their differences, they had found in the long run that this would pay them. Mr. Hill had taken exception to the calculation that he (Mr. Howell) had made with regard to the 10s. per week that a man received in the form of pay. He did not think it could be said that a man paid himself his strike wages, any more than it could be said of a man in an insurance society that he paid for the rebuilding of a house that had been burned down. He paid into a society, a first class benefit society, which gave him certain advantages. In reality they paid for a great number of benefits, and it happened, perhaps, that once in a life time he was thrown out on strike and got a great deal of strike payment. In those great labour battles a very small proportion of the men fight the battle for the entire class. If 10 or even 20 per cent. of a trade fought the battle for the whole number, that class must be benefited by that struggle, and the loss to the entire body would be very small indeed. Supposing in a certain district 200 men struck for two months, and received 2s. per week advance, that was a small number of men; but if those 200 men fought the battle, and gained it, for say, 1,000 men in the district, and prevented the repetition of a similar struggle, this would do good. With regard to arbitration, he believed in an attempt to conciliate differences between masters and men in the first instance, and if no such attempt were made, he thought it would be doing a wrong both politically and socially. The issues ought to be narrowed down as far as possible, and then submitted to arbitration, or failing this, to an umpire. He did not think that the number of cases in which the men and masters had repudiated the award when given, ought to lead them to despair of the remedy of arbitration. He thought employers ought to be the first to welcome it, because as a class they were more intelligent than the employed, and able to take a broader view of the thing. The onus ought to be thrown upon the men if they were stupid enough to refuse to submit to arbitration. It had been the worst feature in the arbitration question, that most of the strikes were those that had taken place



on the most trivial subjects. He could only hope, in conclusion, that the discussion on the paper, and on others of the same kind carried on elsewhere, would lead to justice being done on both sides.

Mr. NEWMARCH was glad to see there Mr. George Howell, who as parliamentary secretary of the trades union societies, had acquired a high reputation. Mr. Howell had written several books and articles of great merit, all or most of which Mr. Newmarch had read with interest and profit. Mr. Howell's article in "*Fraser's Magazine*," for December last, was temperate and very ingenious, but the premises were assumed with considerable freedom, and there was good reason to doubt whether, as Mr. Howell represents, the strikes of very small numbers of men had procured solid benefits for the great and large numbers he set out in his tables. The legislation of the last few years had entirely abrogated the repressive features of the old combination laws, and the law had now most properly left both masters and men to form any combination they pleased, so long as absolute freedom on the part of each individual is not impaired. In the case of trades union societies, the legislature, by means of an Act, which Mr. Howell had a leading hand in procuring, has granted to trade societies a degree of license very hard to defend: inasmuch as such societies are permitted to mix in the same fund, contributions received by them for purely life insurance, annuity, and sick purposes, and contributions received for strike and trade purposes; and the courts of law are forbidden to give any remedy to contributors unable to procure the fulfilment by any such society of its life insurance, annuity, or sick obligations. The grievances arising out of this extravagant liberty are by no means speculative, as was shown in the painful case of the South Yorkshire Miners' Fund two or three years ago, in which some hundreds of claimants, rendered widows and orphans by a colliery accident, could not get either money or redress. Mr. Newmarch had never heard any reason even decently tenable advanced in favour of the confusion of contributions, and denial of legal remedies, to which he had referred, and until this scandal be removed, the trades unions will most properly be open to severe criticism.

Trade contentions, like all contentions between buyers and sellers, were inevitable, and in themselves wholesome. But contentions about wages were more intrinsically difficult than bargaining about goods. Hence it was matter of real congratulation to both men and masters, that latterly the subject had been treated in many cases by both sides with eminent moderation, intelligence, and care. Both sides seem to be now sensible that whether it is a strike or an arbitration, there is, and must be, unrepresented at it, that important third party—the public—and the willingness or unwillingness of the public to pay higher prices, which in reality controls both wage payers and wage receivers. It may be assumed that the bad days of trades unions were over. We cannot suppose the encouragement by respectable men of violence or intimidation; but even greater order and peacefulness cannot remove from trades unions their fundamental defect, viz., that in their essence they seek to place checks and difficulties in the way of superior skill,

intelligence and industry, for the benefit or supposed benefit of the men who are inferior in all or most of the qualities which enable men to raise themselves in the world. With the growth of education it is inevitable, taking human nature as it is, that the superior, active, ambitious working men, will more and more refuse to be put under disabilities for the supposed benefit of their inferior comrades and competitors.

Mr. Bevan's paper was a very intelligent and praiseworthy attempt to collect and classify the facts of a very difficult subject.

Mr. WALFORD thought the international aspect of the question ought not to be lost sight of, because there could be no doubt that during the continuance of strikes in the last ten years, our international interests had been suffering. A large proportion of certain branches of trade had gone from this to other countries, and would no doubt continue to do so if the strikes continued. Belgium had been considerably benefited in this way; and still more so the United States, who had supplanted our cutlery over the entire continent of America, was usurping our former supremacy in plated wares, and also seriously threatening our iron industries generally. He could give further instances of it if it were necessary to do so.

Mr. PHILIP VANDERBYL said the author of the paper had omitted to give a definition of the term *strike*.

If the refusal of a clerk to perform his duties without increase of salary, or the objection of a merchant to sell his goods below a certain price, were to be considered as strikes—as suggested by two of the speakers—it is clear that the tabular statements of the author would have to be greatly altered, in fact it would be impossible to consider the subject statistically.

In his (Mr. Vanderbyl's) opinion, a *strike* might be defined as the refusal of a number of persons to perform certain customary work or duties, not only to the disadvantage of the employer, but also to the injury of the general community.

In referring to the causes of strikes, the author had omitted one which he (Mr. Vanderbyl) thought very important, viz., the stupid desire of workmen to be placed on an equal footing with regard to pay, and although certain men were infinitely superior to others, they insisted that the inferior workmen should be paid the same as the best men. If the employer were allowed to classify his men, and pay according to merit, it would not only be a great advantage to the intelligent workmen, but would tend to prevent strikes.

The CHAIRMAN thought the idea of a strike was shown in Table IX. In upwards of a hundred cases the minimum number was 150 men.

Sir EDMUND BECKETT, Q.C., thought that the only thing that would put an end to strikes was that those who conducted them, should be made to understand, better than they do yet, whether they were really injurious or not. Mr. Howell, and those whom he led, were in the habit of coming to very rough and ready conclusions about cause and effect in a manner perfectly illogical. They continually said that the condition of the working man was

improved, and then jumped to the conclusion that that must be due to strikes, whereas it might just as well be in spite of strikes. The condition of every class has improved, of those which strike, quite as much as of those which do not. The condition of school boys and domestic servants has improved immensely, and he did not know that strikes could be credited with doing any great benefit to either of them. That sort of reasoning is mere begging of the very question in dispute. Then Mr. Howell assumed that because strikes are most numerous in the north, and because intelligence chiefly lived in the north (which compliment he [Sir E. Beckett] gladly accepted), therefore strikes must be right. But this summary kind of logic is not altogether convincing. Mr. Howell might perhaps reflect with advantage that great labouring masses are vastly more numerous in the north than the south. Another still more amazing fallacy which Mr. Howell persisted in, was that those who strike, being only a small proportion of the whole number of workmen, and spending only the money they already have, was analogous to an insurance company against fire. A more unlike analogy was never put forward. People do not make fires on purpose, as they do strikes. The loss by fire is inevitable, what is called in law, the act of God, and the object of insurance is to distribute that inevitable loss over as many people as possible. But a strike first wilfully makes a universal loss of all the labour and its produce to everybody, and then consumes all the savings of the working class alone to maintain it as long as possible. So long as Mr. Howell deludes his followers with reasoning of that kind, the visions of working men having learnt more wisdom than before these bad times, are altogether baseless; and he was sorry to say he could see no evidence that they had yet learnt anything.

So far as he had heard this evening, no notice seemed to have been taken that mere striking for money was not by any means the most important part of what is called the labour question. At a meeting of the Architects' Institute, two years ago, Mr. Lucas, the great builder, said, "I pay for labour half as much again as I did some years ago, and I do not get half as much done, in other words, the same amount of work costs three times as much as it did. I could stand paying more, if I could get the work done;" and many other employers of all kinds say the same. Until Mr. Howell, and those whom he leads, learn that all the riches the world enjoys come from two things, namely, from the earth itself, and the labour spent upon it, all their other reasoning would be in vain, and only lead to mischief. With regard to the present prospects of trade, although it was a dangerous thing to connect causes and effects, he was struck with the fact that immediately there was a good harvest in America, trade began to revive here in consequence of increased demands from America. The fundamental thing was to get as much work out of the earth as the world could do without doing itself any harm, *i.e.*, working too hard for health; and the question of how much was to be paid for it, was a minor one, though of course all important in competition. Referring to trade outrages, it was obviously the spirit of unionism that caused them. Every man who destroys another's tools, or breaks his head, because he disobeys union rules, or works for lower wages



than are resolved on, is *ipso facto* the agent of unionism, whether he has had any special orders from a union council or not ; and it is mere absurdity to deny them, when we are reading them continually in the newspapers, which of course only record a very small proportion of what really happen.

It was very easy for Mr. Howell to say that Mr. Brassey, or somebody else, has proved that strikes had nothing to do with the driving away of shipbuilding from the Thames. That is a very common desire of reasoners on many subjects who have awkward facts to deal with, or arguments that they cannot answer, viz., to say that somebody else has answered them completely. Nobody who is versed in the ways of controversy, accepts statements of that kind, except as proving that the man who makes them, really cannot answer the arguments himself. Has Mr. Howell forgotten that Messrs. Burns of Glasgow wrote to the "Times" two years ago, that they were getting carpentry for their ships from Japan ? The union orators and reasoners never seemed to take any account of foreign competition, aided by English strikes, carrying off whole trades, except, indeed, when they try to get up grand international unions for universal strikes.

Mr. POCHIN said that the constant differences that arose between masters and men, were very deeply to be regretted. The effect was very injurious to all the interests concerned. Arbitration as at present conducted, was very unsatisfactory, as it had no settled basis on which to act. Arbitrators and umpires in nearly all cases had confined themselves to an inquiry as to the amount of wages the masters could afford to pay on the one hand, and the men afford to work for on the other hand ; that, he thought, could never be a satisfactory basis. He knew a case where one company was working six collieries ; in some of those collieries the coal was very good, commanding a high price in the market, and was easily raised ; in the other collieries, the coal was inferior, and commanded a far less price in the market, and the raising was attended with many mining difficulties. Arbitration, on the terms on which it was usually conducted, would, under those circumstances, decree, that two colliers, working at less than a mile distant from each other, should have different rates of wages, for precisely the same amount of work. Until wages were settled purely on the question of supply and demand, and without combinations of workmen on one side, and masters on the other, he did not think that the three great interests concerned would have reason to be satisfied with the results. These three interests being the masters, the workmen, and the public.

Mr. BEVAN, in reply, disclaimed having used intemperance of language in treating the subject. Mr. Howell had spoken of the violence of masters, and the intemperate spirit of the employed. He (Mr. Bevan) thought the one was as bad as the other. To discuss the question with bias, would be as bad as to discuss it with temper. The evil was a terrible one. It was no use discussing what caused it, but they ought to seek to remedy it.

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On CERTAIN CHANGES *in the* ENGLISH RATES of MORTALITY.

By THOMAS A. WELTON, ESQ.

[Read before the Statistical Society, 17th February, 1880.]

CONTENTS :

	PAGE		PAGE
I.—Introductory .....	65	III.—The Causes of the Increased	
II.—The Extent of the Changes		Mortality amongst Males	
in Mortality .....	69	Aged 35—65 .....	78

I.—*Introductory.*

THE leading fact in relation to the statistics of mortality is the *regularity* which underlies every variation of death-rate, whether such variation be found to exist on a comparison of statistics of several localities, or of the same locality at different periods and under dissimilar conditions; whether the reason of such variation be traceable to the influence of particular occupations upon mortality, to the results of migrations (in search of employment, of education, of amusement, or of renewed health), to the unequal stamina of different races of men, to the circumstances respectively affecting the two sexes, or to some alteration in the habits of the people.

The essential nature of this regularity consists in the graduation of the series of death-rates at the several periods of life, beginning with heavy losses in the earliest years, descending rapidly to a minimum, and thenceforward progressively increasing until the end of life. The exact place of the minimum may fluctuate, and the increase afterwards may not proceed by similar steps; the absolute rates at all periods of life may be strongly contrasted, but the general likeness of the series remains. We may say with truth that a resemblance exists between curves representing mortality at successive ages, even greater than that which unites in one category every right-angled triangle; for the sides of such a triangle may be of any length, but there are limits beyond which the variations of death-rates do not appear to go.

Whilst regularity of type is the leading feature of the curves resulting from different series of death-rates, variability of detail is the next. When once the mind has grasped the idea of regularity of general character, nothing more remains to be learned in that direction; but as variations in the amount of losses by death are material and frequent, they afford infinite matter for study, and observers are led to think rather too much of momentary changes

and contrasts, and too little of the substantial similarity and constancy which underlies them all.

I am far from regretting that this is so, for whilst the losses by death are so frequently excessive, it is well to instil the lesson that rates of mortality *are* changeable, and may consequently be modified by the endeavours of mankind. The more thoroughly people appreciate this fact, the greater the probability that they will exert themselves in order to reduce the ravages of preventable disease and death.

On the other hand, it is fit that from time to time the data for long periods should be examined, and the stability or changefulness of the phenomena considered. Tendencies may thus be discovered which, from the slowness of their operation, might produce, in any short period of time, effects so slight as to be overshadowed by those resulting from transient causes of disturbance, but which, being persistent, would in a series of years bring about changes of an unmistakeable character.

The English returns were comparatively imperfect until the system of registration had been some years in existence; and the population tables classifying the inhabitants of this country according to their ages were prior to 1851 very far from being reliable. I am therefore of opinion that it will be better to restrict our comparisons to the thirty years extending from 1846 to 1875, instead of commencing with 1838, the first year of registration.

According to the tables of annual death-rates given by the Registrar-General (Nos. 23 and 25, in his thirty-eighth report), the mortality of both sexes at ages 5—25\* has been continuously reduced with hardly an interruption, during twenty-five years, thus :—

	Mean Death-Rates per 1,000 Living.					
	Males.			Females.		
	Age 5—10.	Age 10—15.	Age 15—25.	Age 5—10.	Age 10—15.	Age 15—25.
Average 1846-50 .....	9·6	5·4	8·6	9·3	5·7	8·9
" '51-55 .....	8·8	5·2	8·1	8·5	5·3	8·5
" '56-60 .....	8·3	4·6	7·4	8·3	4·9	7·8
" '61-65 .....	8·5	4·7	7·5	8·2	4·8	7·6
" '66-70 .....	7·9	4·3	7·1	7·4	4·3	7·1
" '71-75 .....	7·2	4·0	6·9	6·6	4·0	6·7
Abatement equal to } (per cent.) .....	25	26	20	29	30	25

\* The mortality tabulated at ages 0—5 has diminished thus :—amongst males from 74·1 per 1,000 in 1846-50, to 70·0 per 1,000 in 1871-75 :—amongst females,

At ages 35—75 the rates of mortality amongst males, after being somewhat diminished, have become higher than they were in 1846-50:—

	Mean Death-Rates per 1,000 Living, amongst Males.			
	Age 35—45.	Age 45—55.	Age 55—65.	Age 65—75.
Average 1846-50 .....	13·4	19·4	33·4	68·9
„ '51-55: .....	12·9	18·6	31·5	66·8
„ '56-60 .....	12·4	17·1	30·0	66·2
Abatement equal to } (per cent.) .....	7	12	10	4
Average 1861-65 .....	13·4	18·8	32·6	66·6
„ '66-70 .....	13·6	19·6	33·5	68·2
„ '71-75 .....	14·3	20·1	34·8	69·6
Later increase equal } to (per cent.) .....	15	18	16	5
Increase on the whole } period (per cent.) .....	7	4	4	1

The increase in male mortality would appear in a stronger light, were the years omitted in which epidemics occurred. Thus taking that year of each quinquennium in which the average mortality was lowest, we have the following death-rates at the ages mentioned, viz. :—

	Mean Death-Rates per 1,000 Living, amongst Males.			
	Age 35—45.	Age 45—55.	Age 55—65.	Age 65—75.
Year 1850 (lowest in 1846-50)....	11·6	17·2	29·8	62·8
„ '51 ( „ '51-55)....	12·4	17·9	30·3	64·0
„ '56 ( „ '56-60)....	11·9	16·4	28·8	61·6
Abatement equal to (per cent.)	3*	5	3	2
Year 1862 (lowest in 1860-65)....	12·7	18·1	31·3	62·5
„ '67 ( „ '66-70)....	13·5	19·1	33·5	68·5
„ '73 ( „ '71-75)....	13·6	19·5	34·0	70·4
Later increase equal to (per } cent.) .....	14	19	18	14
Increase on the whole period } (per cent.) .....	17	13	14	12

\* Increase.

from 63·9 per 1,000 in 1846-50, to 60·2 per 1,000 in 1871-75. The rates in 1841-45 were lower than any since shown, but the earlier records at this period of life were no doubt imperfect in comparison with more recent returns.

The average mortality amongst females at the ages 35 to 75 appears to have been as under, viz. :—

	Mean Death-Rates per 1,000 Living, amongst Females.			
	Age 35—45.	Age 45—55.	Age 55—65.	Age 65—75.
Average 1846-50 .....	13·5	16·7	29·4	63·3
„ '51-55 .....	12·4	15·6	27·8	59·0
„ '56-60 .....	11·6	14·7	27·1	54·9
Abatement equal to } (per cent.) .....	<b>14</b>	<b>12</b>	<b>8</b>	<b>13</b>
Average 1861-65 .....	12·1	15·4	28·0	57·9
„ '66-70 .....	12·0	15·8	28·0	59·4
„ '71-75 .....	12·0	15·8	28·9	61·2
Later increase equal } to (per cent.) .....	<b>3</b>	<b>8</b>	<b>7</b>	<b>11</b>

showing, upon the whole, a reduction, in spite of recent increase; but on comparing the most favourable years, as in the case of males, a tendency towards increased death-rates from age 45 upwards is observable :—

	Mean Death-Rates per 1,000 Living, amongst Females.			
	Age 35—45.	Age 45—55.	Age 55—65.	Age 65—75.
Year 1850 (lowest in 1846-50) ..	11·7	14·7	26·1	57·3
„ '51 ( „ '51-55)....	11·9	15·2	26·8	58·5
„ '56 ( „ '56-60)....	11·3	14·0	25·1	51·2
Abatement equal to (per cent.)	<b>3</b>	<b>5</b>	<b>4</b>	<b>11</b>
Year 1862 (lowest in 1861-65)....	11·8	14·7	26·7	57·2
„ '67 ( „ '66-70)....	11·9	15·6	27·6	59·6
„ '73 ( „ '71-75)....	11·5	15·5	28·4	61·8
Later increase equal to (per cent.)	<b>2</b>	<b>11</b>	<b>13</b>	<b>21</b>

On the whole then the tables show that the striking abatement in mortality at ages 5—25 has been attended with an aggravation of the loss by death at higher ages, putting aside epidemic years, and that such aggravation has been far more considerable amongst males than amongst females. Every circumstance which will help us to measure the extent, and to understand the causes, of such a deterioration in the vitality of males, demands attention.

I shall proceed before the close of this paper, to point out *the apparent causes*, as shown in the Registrar General's tables, leaving to others to determine how these have been brought into operation.



## II.—*The Extent of the Changes in Mortality.*

The tables in the Registrar-General's thirty-eighth report, from which the above ratios were extracted, are useful enough for ordinary purposes; but when we have to grapple with questions of serious import, in order to appreciate which small and gradual but cumulative changes have to be measured, it is right that every correction which the figures need should be borne in mind.

I have arrived at the conclusions (1st) that the census returns as to ages require to be amended; (2nd) that the approximate proportions of births which annually escape registration are discoverable; and (3rd) that the net results of migrations into and from the country may also be measured.

By the help then of such transpositions of the numbers stated to exist at different ages as appear to me to be necessary, I proceed to show what I believe to be an approximately true national table of mortality for 1856-60, when the upward movement seems not to have commenced; and also a similar table representing the experience of the years 1871-75, when such movement had attained a considerable if not alarming development.\* These two tables, for males and females respectively, and showing the excess of either sex surviving at different periods of life in a stationary population solely recruited by births, are here contrasted with Dr. Farr's English Life Table No. 3.

\* Besides correcting the returns of population by ages in conformity with the suggestions contained in my paper "On the Inaccuracies which probably exist in the Census Returns of Ages," printed in the "Transactions of the Historic Society of Liverpool," for 1875-76, vol. iv, which will be found in the Library of the Statistical Society, I have allowed for unregistered births in conformity with the percentages mentioned in the same paper; and then having, by means of estimates, apportioned the recorded deaths under the quinquennial periods in which the persons dying were born, I have arrived by way of difference at the probable loss or gain resulting from migrations at each age in the intervals between the censuses, and have obtained sets of ratios showing the proportionate losses by death out of the population existing at each age, in 1841, 1846, 1851, 1856, 1861, 1866, and 1871, during the five years next succeeding each of those years. Each set of ratios so obtained is immediately convertible into a table of mortality (column  $P_x$  according to Dr. Farr's notation), capable of direct comparison with the English Life Table No. 3, because based on an equal number of supposed annual births.

Age.	England and Wales. Population resulting from a Thousand					
	Survivors (Experience of 1856-60).				Survivors (Experience	
	Male.	Female.	Males compared with Females.		Male.	Female.
			Excess.	Deficiency.		
0—5 ....	2026·254	1999·405	26·849	—	2030·349	2005·753
5—10 ....	1823·021	1803·464	19·557	—	1848·430	1835·665
10—15 ....	1769·607	1749·360	20·247	—	1801·110	1791·242
15—20 ....	1724·129	1701·429	22·700	—	1760·946	1750·043
20—25 ....	1659·129	1634·392	24·737	—	1699·490	1688·967
25—30 ....	1586·128	1559·864	26·264	—	1623·863	1617·187
30—35 ....	1515·387	1484·211	31·176	—	1543·807	1541·987
35—40 ...	1437·345	1407·626	29·719	—	1453·341	1462·112
40—45 ....	1353·260	1327·111	26·149	—	1350·299	1376·578
45—50 ....	1259·073	1245·495	13·578	—	1241·060	1284·761
50—55 ....	1152·430	1157·812	—	5·382	1119·189	1189·946
55—60 ....	1025·893	1057·893	—	32·000	984·550	1079·162
60—65 ..	884·115	933·590	—	49·475	827·712	945·671
65—70 ....	709·768	772·453	—	62·685	644·954	769·966
70—75 ....	513·306	577·409	—	64·103	448·566	566·926
75—80 ....	309·728	367·752	—	58·024	264·475	356·199

Using the figures in Dr. Farr's Life Table as a convenient standard of comparison, we find the excess or defect of survivors (per cent.), according to the other tables to be—

Amongst Survivors Aged	Experience 1856-60.		Experience 1871-75.	
	Males.	Females.	Males.	Females.
0-35.....	1·4 more	1·4 more	3·1 more	3·9 more
35-55.....	3·1 „	3·3 „	2·4 „	6·8 „
55-80.....	6·1 „	8·1 „	2·3 less	8·4 „
All ages up to 80.....	2·5 „	3·0 „	2·1 more	5·4 „

The period of years which elapses before the persons who are born are reduced to half their original number, is, according to the above tables, as under:—

	By Dr. Farr's Table.	By Experience of 1856-60.	By Experience of 1871-75.
Males/ .....	44·4	46·5	45·8
Females .....	46·4	48·9	50·9
Female expectation greater by .....	2·0	2·4	5·1

Thus the probable lifetime of female infants seems now to exceed

Annual Births: 511'745 Male and 488'255 Female.						Age.
of 1871-75).		Survivors (by Dr. Farr's Life Table No. 3).				
Males compared with Females.		Male.	Female.	Males compared with Females.		
Excess.	Deficiency.			Excess.	Deficiency.	
24'596	—	2015'886	1988'330	27'556	—	0—5
12'765	—	1801'316	1783'240	18'076	—	5—10
9'868	—	1742'507	1723'706	18'801	—	10—15
10'903	—	1696'773	1675'461	21'312	—	15—20
10'523	—	1632'979	1609'814	23'165	—	20—25
6'676	—	1560'236	1534'785	25'451	—	25—30
1'820	—	1483'840	1456'076	27'764	—	30—35
—	8'771	1402'868	1374'392	28'476	—	35—40
—	26'279	1315'244	1289'612	25'632	—	40—45
—	43'701	1218'321	1201'075	17'246	—	45—50
—	70'757	1108'460	1107'735	0'725	—	50—55
—	94'612	981'337	999'667	—	18'330	55—60
—	117'959	834'862	866'700	—	31'838	60—65
—	125'012	664'601	706'898	—	42'297	65—70
—	118'360	475'223	523'015	—	47'792	70—75
—	91'724	288'993	333'526	—	44'533	75—80

the duration of that of males by perhaps five years, against a difference of little more than two years according to earlier data.

This great change might seem to arise rather from increased mortality amongst males than from diminished female death-rates. For example, those surviving to be counted at ages 60—65 were by table resulting from

Experience of 1856-60	Males 884'115	Females 933'590
„ '71-75	„ 827'712	„ 945'671
	Fewer 56'403	More 12'081

It should, however, be remarked, that 1856-60 was an exceptionally healthy quinquennium; and if we base our comparison upon Dr. Farr's Life Table, as representing the average of a greater number of years, we find that the figures for 1871-75 show but a small reduction in the number of males attaining the age 60—65, against a very considerable augmentation in the number of surviving females at that period of life. There has apparently been an increase of male mortality at the higher ages, sufficient to counterbalance the improvement in early life, and even after a time to turn it into a loss; whilst among females, a more than proportionate improvement in early life has been followed by a condition of things at the higher ages which leaves the gain practically undiminished.

Ages.	Males.			Females.		
	English Life Table No. 3.	Table for 1871-75.	Difference per Cent.	English Life Table No. 3.	Table for 1871-75.	Difference per Cent.
30—35	1483·840	1543·807	+ 4·0	1456·076	1541·987	+ 5·9
45—50	1218·321	1241·060	+ 1·9	1201·075	1284·761	+ 7·0
60—65	834·862	827·712	— 0·9	866·700	945·671	+ 9·1
75—80	288·993	264·475	— 8·5	333·526	356·199	+ 6·8

I have endeavoured to clear up still further the question as to how the average mortality of the English people has varied since 1841, by constructing a series of life tables on the principles which guided me in preparing the tables already given for 1856-60 and 1871-75. By that means the following results have been reached, viz. :—

Experience of	Survivors Aged 30—35.			Aged 45—50.			Aged 60—65.		
	Males.	Females.	Males in Excess.	Males.	Females.	Males More or Less.	Males.	Females.	Females in Excess.
1841-45 ....	1525·674	1491·276	34·398	1264·691	1243·227	+ 21·464	906·245	938·136	31·891
'46-50 ....	1455·492	1426·174	29·318	1179·817	1163·474	+ 16·343	809·585	847·168	37·583
'51-55 ....	1475·754	1451·982	23·772	1211·694	1201·721	+ 9·973	837·633	886·911	49·278
'56-60 ....	1515·387	1484·211	31·176	1259·073	1245·495	+ 13·578	884·115	933·590	49·475
1861-65 ....	1493·194	1474·474	18·720	1224·212	1229·989	— 5·777	835·077	910·842	75·765
'66-70 ....	1512·780	1501·741	11·039	1227·833	1251·580	— 23·697	832·590	923·688	91·098
'71-75 ....	1543·807	1541·987	1·820	1241·060	1284·761	— 43·701	827·712	945·671	117·959
<i>Averages—</i>									
1841-60 ....	1493·077	1463·411	29·666	1228·819	1213·479	+ 15·340	859·394	901·451	42·057
'61-75 ....	1516·593	1506·067	10·526	1231·035	1255·427	— 24·392	831·793	926·734	94·941

The average figures which result from grouping the ratios for 1841 to 1860, and for 1861 to 1875, show an improvement, both absolute and comparative, in the vitality of females; and the series of quinquennial figures shows that this alteration in the relative mortality of the sexes not only continued in progress from the earliest to the latest date, with hardly any interruption, but was accelerated during the last fifteen years. Although in 1841-45 the average rates of mortality were much lower, and in 1846-50 they were much higher than the ordinary level, the tables for these two periods were alike in one respect, viz., in showing a smaller excess of female survivors at age 60—65 than in any later quinquennium.

Regarding the matter from another point of view, we perceive



that in 1871-75 the male mortality after age 30 was so high as to reduce

1543·807 aged 30—35,

to 827·712 aged 60—65, only 53·6 per cent. surviving.

Even in 1846-50, when the cholera epidemic so materially affected the average result, such a loss was not experienced; for

1455·492 aged 30—35,

became 809·585 aged 60—65, fully 55·6 per cent. surviving.

Consequently the male mortality during the latest quinquennium at ages 30—60 was higher than in any of the other six similar periods.

The variations in the risk of death at several periods of life, which are summed up in the life tables already given, may be better seen in the following table, which shows the proportional loss by deaths occurring in the five years next succeeding the attainment of the age mentioned in the first column:—

Age at Commence- ment.	Deaths per 1,000 in the Next Five Years.							
	"English Life Table No. 3."		Experience, 1841-45.		Experience, 1846-50.		Experience, 1851-55.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
Birth* ....	212·2	185·5	196·1	169·3	208·2	180·6	213·4	185·5
0—5....	106·4	103·1	99·9	95·8	112·1	107·3	103·3	98·9
5—10....	32·6	33·4	31·7	31·4	33·5	33·2	32·1	31·7
10—15....	26·2	28·0	26·8	29·8	29·2	31·7	27·7	29·6
15—20....	37·6	39·2	40·3	42·8	43·5	46·1	41·9	43·2
20—25....	44·5	46·6	44·2	47·9	50·1	52·0	46·9	49·7
25—30....	49·0	51·3	46·7	50·4	50·9	56·6	48·5	51·5
30—35....	54·6	56·1	52·9	55·3	58·1	59·9	53·6	56·1
35—40....	62·5	61·7	60·6	58·1	66·9	66·3	63·1	59·9
40—45....	73·7	68·7	68·3	63·1	77·7	70·6	74·0	67·3
45—50....	90·2	77·7	82·5	69·3	91·8	78·2	91·0	73·4
50—55....	114·7	97·6	102·6	85·1	116·0	95·5	112·4	91·9
55—60....	149·3	133·0	129·7	113·8	145·3	126·7	143·2	122·9
60—65....	203·9	184·4	184·7	165·3	203·5	181·5	200·0	176·8
65—70....	285·0	260·1	264·9	241·2	286·0	262·2	285·1	259·5
70—75....	391·9	362·3	380·3	344·1	406·2	369·1	406·7	374·2

\* The ratios in this line show that out of 1,000 births occurring in five successive years prior year are exposed to five years' risk, those at the very end of the last year are exposed to no risk,

The regularity of the several sets of ratios shown in the above table cannot escape notice; it remains to be seen what are the changes which they indicate to be in progress, and are such changes subject to any uniform laws? Other tables must be employed to assist us in placing the matter in a sufficiently clear light. Thus:—

Deaths per 1,000 in the Next Five Years.								Age at Commence-ment.
Experience, 1856-60.		Experience, 1861-65.		Experience, 1866-70.		Experience, 1871-75.		
Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	
208.1	181.0	212.1	184.2	213.3	185.8	206.5	178.4	Birth*
100.3	98.0	105.7	101.6	97.8	93.2	89.6	84.8	0—5
29.3	30.0	29.2	28.9	27.0	26.0	25.6	24.2	5—10
25.7	27.4	25.5	27.1	23.7	24.6	22.3	23.0	10—15
37.7	39.4	38.5	39.5	36.0	37.0	34.9	34.9	15—20
44.0	45.6	43.8	44.8	44.0	43.4	44.5	42.5	20—25
44.6	48.5	47.8	49.3	48.5	48.0	49.3	46.5	25—30
51.5	51.6	54.6	54.1	57.6	53.2	58.6	51.8	30—35
58.5	57.2	64.8	57.7	66.5	59.2	70.9	58.5	35—40
69.6	61.5	72.7	64.1	77.4	64.4	80.9	66.7	40—45
84.7	70.4	91.1	71.0	91.5	73.5	98.2	73.8	45—50
109.8	86.3	115.7	91.7	119.3	89.5	120.3	93.1	50—55
138.2	117.5	151.3	122.4	152.5	125.1	159.3	123.7	55—60
197.2	172.6	201.3	176.2	211.5	175.6	220.8	185.8	60—65
276.8	252.5	287.0	256.8	288.0	257.1	304.5	263.7	65—70
396.6	363.1	399.2	362.5	412.8	369.7	410.4	371.7	70—75

to a census taken at the end of the period so many die. Those born at the beginning of the first because they are immediately counted as living at the age 0—5.

Age at Commencement of Five Years.	The Male Death-Rate in the last Table being Assumed Equal to 1,000, the Female Death-Rate was Less* by							In Thirty Years the Female Death-Rate had thus become relatively	
	Experience, 1841-45.	Experience, 1846-50.	Experience, 1851-55.	Experience, 1856-60.	Experience, 1861-65.	Experience, 1866-70.	Experience, 1871-75.	Less.	More.
Birth.....	137	133	131	130	132	129	136	—	1
0—5 ....	41	43	43	23	39	47	54	13	—
5—10 ....	9	9	12	+24	10	37	55	46	—
10—15 ....	+112	+86	+69	+66	+63	+38	+31	81	—
Aggregate ratios....	} 75	99	117	63	118	175	214	—	—
15—20 ....	+62	+60	+31	+45	+26	+28	—	62	—
20—25 ....	+84	+38	+60	+36	+23	14	45	129	—
25—30 ....	+79	+112	+62	+87	+31	10	57	136	—
30—35 ....	+45	+31	+47	+2	9	77	116	161	—
Aggregate ratios....	} +270	+241	+200	+170	+71	73	218	—	—
35—40 ....	41	9	51	22	110	110	175	134	—
40—45 ....	76	91	91	116	118	168	176	100	—
45—50 ....	160	148	193	169	221	197	248	88	—
50—55 ....	171	177	182	214	207	241	226	55	—
Aggregate ratios....	} 448	425	517	521	656	716	825	—	—
55—60 ....	123	128	142	150	191	180	224	101	—
60—65 ....	105	108	116	125	125	170	159	54	—
65—70 ....	89	83	90	88	105	107	134	45	—
70—75 ....	95	91	80	85	92	104	94	—	1
Aggregate ratios....	} 412	410	428	448	513	561	611	—	—

\* Where the female death-rate was *greater* instead of *less*, an affirmative sign (+) is used.

These ratios possess a great deal of regularity, whether we regard them in one way or another, and they show once more, that *for some reason, operating over the whole period*, male mortality, at ages 5 to 70, has diminished by a less amount, or has increased to a greater extent, than that of females. In 1841-45 the mortality of females exceeded that of males at the five ages from 10 to 35; in 1871-75 there was no such excess save at the age 10 to 15.

At the ages 15—35 it is specially to be remarked that, notwithstanding the dangers of maternity, female mortality now compares favourably with that amongst males. At ages 25—35 the male death-rates were hardly lower in 1871-75 than in 1846-50; at the same ages, female death-rates were in 1871-75 about 16 per cent. lower than in 1846-50.



Next, let us compare the absolute ratios contained in the preceding table for either sex, thus:—

Age at Commencement of Five Years.	Changes in Male Death-Rates.		Changes in Female Death-Rates.		Total Changes in Thirty Years from 1841-45 to 1871-75.		Latest Ratios (1871-75) compared with those derived from the English Life Table No. 3.	
	Between 1841-45 and 1856-60.	Between 1856-60 and 1871-75.	Between 1841-45 and 1856-60.	Between 1856-60 and 1871-75.	Males.	Females.	Males.	Females.
Birth.....	+ 12·0	— 1·6	+ 11·7	— 2·6	+ 10·4	+ 9·1	— 5·7	— 7·1
0— 5....	+ 0·4	— 10·7	+ 2·2	— 13·2	— 10·3	— 11·0	— 16·8	— 18·3
5—10....	— 2·4	— 3·7	— 1·4	— 5·8	— 6·1	— 7·2	— 7·0	— 9·2
10—15....	— 1·1	— 3·4	— 2·4	— 4·4	— 4·5	— 6·8	— 3·9	— 5·0
15—20....	— 2·6	— 2·8	— 3·4	— 4·5	— 5·4	— 7·9	— 2·7	— 4·3
20—25....	— 0·2	+ 0·5	— 2·3	— 3·1	+ 0·3	— 5·4	—	— 4·1
25—30....	— 2·1	+ 4·7	— 1·9	— 2·0	+ 2·6	— 3·9	+ 0·3	— 4·8
30—35....	— 1·4	+ 7·1	— 3·7	+ 0·2	+ 5·7	— 3·5	+ 4·0	— 4·3
35—40....	— 2·1	+ 12·4	— 0·9	+ 1·3	+ 10·3	+ 0·4	+ 8·4	— 3·2
40—45....	+ 1·3	+ 11·3	— 1·6	+ 5·2	+ 12·6	+ 3·6	+ 7·2	— 2·0
45—50....	+ 2·2	+ 13·5	+ 1·1	+ 3·4	+ 15·7	+ 4·5	+ 8·0	— 3·9
50—55....	+ 7·2	+ 10·5	+ 1·2	+ 6·8	+ 17·7	+ 8·0	+ 5·6	— 4·5
55—60....	+ 8·5	+ 21·1	+ 3·7	+ 6·2	+ 29·6	+ 9·9	+ 10·0	— 9·3
60—65....	+ 12·5	+ 23·6	+ 7·3	+ 13·2	+ 36·1	+ 20·5	+ 16·9	+ 1·4
65—70....	+ 11·9	+ 27·7	+ 11·3	+ 11·2	+ 39·6	+ 22·5	+ 19·5	+ 3·6
70—75....	+ 16·3	+ 13·8	+ 19·0	+ 8·6	+ 30·1	+ 27·6	+ 18·5	+ 9·4

This table again shows that there has been more regularity than could have been expected in the changes of mortality ratios which have taken place. In the fifteen years between 1841-45 and 1856-60 both sexes experienced an unfavourable change\* in the earliest period of infancy, then an improvement extending to about 40 or 45 years of age, and at higher ages, a deterioration in vitality. In the second period of equal duration, there was a yet greater improvement in the period of youth, but after 25 the ratios for males showed very unfavourably, and after 35 there was a sensible increase in female mortality.

The sum of the changes within the two periods exhibits a striking improvement in the mortality of both sexes, after earliest infancy up to age 20; this continued fifteen years later in life for women; after which both sexes, especially males, showed enhanced death-rates.

On being compared with the English Life Table No. 3, the latest set of ratios would indicate that female vitality at every age up to 60 has improved, but that male inhabitants of this country aged 25

\* This unfavourable feature is probably illusory; if the record of infantile deaths had been as complete in 1841-45 as in 1856-60, very likely appearances would have pointed the other way.

and upwards are now subject to rates of mortality exceeding those shown in that table.

III.—*The Causes of the Increased Mortality amongst Males Aged 35—65.*

The deaths occurring amongst males aged 35—65 appear to have been due to the undermentioned causes in the proportions indicated at the periods mentioned :—

Causes.	Annual Male Death-Rates per 1,000 Living.								
	Age 35—45.			Age 45—55.			Age 55—65.		
	1851-60.	1861-70.	1875.	1851-60.	1861-70.	1875.	1851-60.	1861-70.	1875.
Zymotic diseases ....	1'60	1'38	1'41	2'07	1'69	1'52	3'12	2'54	2'31
Cancer.....	0'17	0'20	0'25	0'42	0'54	0'70	0'93	1'21	1'62
Scrofula,        tabes } mesenterica..... }	0'12	0'10	0'08	0'13	0'11	0'07	0'14	0'14	0'08
Phthisis .....	4'01	4'17	4'41	3'83	3'86	3'85	3'33	3'30	3'33
Disease of brain.....	1'18	1'34	1'55	1'99	2'24	2'45	4'10	4'66	5'57
Heart disease and } dropsy .....	1'00	1'23	1'59	1'90	2'19	2'61	4'13	4'58	5'40
Disease of lungs.....	1'52	1'72	2'52	3'09	3'50	4'78	6'62	7'59	10'32
Disease of stomach } and liver .....	0'89	0'91	1'01	1'66	1'71	1'82	3'03	3'06	3'20
Disease of kidneys....	0'29	0'41	0'52	0'47	0'66	0'87	0'94	1'28	1'77
Violent deaths .....	1'15	1'31	1'39	1'37	1'55	1'63	1'61	1'89	2'08
Other causes .....	0'55	0'69	0'37	1'03	1'11	0'70	2'90	2'75	2'00
All causes .....	12'48	13'46	15'10	17'96	19'16	21'00	30'85	33'00	37'68

At these ages, the zymotic diseases, or those specially consequent on bad sanitary conditions, such as fevers, small pox, cholera, and diarrhoea, seem collectively less fatal than they were, but local diseases, of the lungs, heart, brain, and kidneys, and also cancer, appear to be more destructive.

The causes of death at several ages are not shown in the Registrar-General's Reports except for the whole country and for London, save in the supplementary tables for 1851-60 and 1861-70. These supplementary tables enable us to present the following comparisons :—

	Annual Mortality per 1,000 Males Aged 35—45.									
	Disease of Lungs.		Heart Disease and Dropsy.		Disease of Brain.		Disease of Kidneys.		Cancer.	
	1851-60.	1861-70.	'51-60.	'61-70.	'51-60.	'61-70.	'51-60.	'61-70.	'51-60.	'61-70.
<i>Large Towns*—</i>										
London (division) .....	1'98	2'18	1'32	1'54	1'45	1'55	0'44	0'62	0'24	0'29
Liverpool .....	3'10	3'53	1'46	2'06	1'43	1'43	0'37	0'57	0'23	0'23
Manchester .....	3'14	3'56	1'23	1'47	1'55	1'96	0'42	0'50	0'21	0'24
Birmingham .....	1'91	2'11	1'21	1'35	1'41	1'44	0'42	0'40	0'25	0'22
Leeds .....	2'48	2'93	1'19	1'62	1'06	1'15	0'35	0'48	0'23	0'29
Sheffield .....	2'37	3'00	1'09	1'58	1'12	1'29	0'27	0'31	0'14	0'10
Nottingham .....	0'97	1'30	0'87	1'18	1'18	1'28	0'18	0'35	0'10	0'23
Bristol .....	1'73	1'89	1'14	1'30	1'71	1'73	0'44	0'64	0'38	0'34
Hull.....	1'73	1'62	1'55	1'61	1'36	1'42	0'30	0'37	0'20	0'18
The Potteries .....	2'78	3'68	1'12	1'36	1'07	1'08	0'21	0'33	0'15	0'06
Newcastle-on-Tyne .....	1'37	2'03	2'03	2'44	1'21	1'28	0'44	0'49	0'29	0'34
Leicester .....	1'41	1'65	1'09	1'93	1'61	1'74	0'43	0'53	0'17	0'14
Wolverhampton .....	2'35	1'92	1'11	1'15	1'03	0'73	0'34	0'49	0'12	0'23
<i>Rural Divisions—</i>										
Div. II. South Eastern .....	1'27	1'38	1'05	1'38	1'26	1'44	0'32	0'46	0'19	0'19
„ III. South Midland.....	1'13	1'18	0'85	0'96	1'43	1'67	0'26	0'36	0'19	0'23
„ IV. Eastern .....	1'02	1'03	0'72	0'86	0'94	1'09	0'26	0'36	0'13	0'17
„ V. South Western.....	1'35	1'39	0'86	1'08	1'14	1'31	0'26	0'43	0'16	0'21
Rest of Div. VI. W. Mdlnd.	1'28	1'32	0'92	1'05	1'18	1'34	0'22	0'34	0'14	0'18
„ VII. N. Mdlnd.	1'00	1'12	0'82	0'90	0'78	0'94	0'23	0'30	0'13	0'17
„ VIII. N. Wstrn.	1'70	2'09	1'02	1'19	1'14	1'38	0'25	0'29	0'13	0'16
„ IX. York .....	1'22	1'53	0'84	1'11	1'06	1'25	0'23	0'31	0'14	0'17
„ X. Northern	0'92	1'14	0'99	1'20	0'99	1'05	0'25	0'25	0'18	0'17
Div. XI. Wales, &c. ....	1'32	1'41	0'70	0'92	0'80	1'01	0'18	0'32	0'13	0'20
England and Wales .....	1'52	1'72	1'00	1'23	1'18	1'34	0'29	0'41	0'17	0'20

\* The several towns are represented in this table by groups of registration districts: for example, Manchester, by the districts of Manchester, Chorlton, and Salford; Bristol, by those of Bristol and Clifton.

	Annual Mortality per 1,000 Males Aged 45—55.									
	Disease of Lungs.		Heart Disease and Dropsy.		Disease of Brain.		Disease of Kidneys.		Cancer.	
	1851-60.	1861-70.	'51-60.	'61-70.	'51-60.	'61-70.	'51-60.	'61-70.	'51-60.	'61-70.
<i>Large Towns—</i>										
London (division) .....	4'55	4'84	2'45	2'73	2'68	2'90	0'81	1'07	0'61	0'82
Liverpool .....	6'37	8'22	2'62	3'07	2'50	2'50	0'61	0'91	0'44	0'70
Manchester.....	7'37	8'45	2'54	2'40	2'89	3'22	0'62	0'91	0'50	0'58
Birmingham .....	4'60	4'93	2'47	2'58	2'71	2'60	0'86	0'85	0'62	0'51
Leeds .....	5'24	6'22	2'22	3'08	2'17	2'80	0'55	0'92	0'46	0'65
Sheffield .....	5'58	5'72	2'35	2'82	2'09	2'56	0'45	0'64	0'47	0'40
Nottingham .....	2'59	2'44	1'81	2'07	2'03	2'32	0'40	0'63	0'27	0'53
Bristol.....	4'26	3'98	2'18	2'30	2'45	2'88	0'81	1'00	0'61	0'56
Hull.....	3'46	3'33	2'44	2'76	2'47	2'40	0'41	0'70	0'46	0'37
The Potteries .....	7'78	8'51	2'42	2'54	2'56	2'63	0'51	0'52	0'33	0'54
Newcastle-on-Tyne .....	4'05	4'08	3'44	3'92	2'77	2'92	0'53	0'66	0'66	0'89
Leicester .....	3'50	3'99	2'20	3'12	2'46	2'56	0'78	0'53	0'60	0'93
Wolverhampton .....	4'43	4'48	2'84	2'34	2'25	1'62	0'45	0'53	0'30	0'56
<i>Rural Divisions—</i>										
Div. II. South Eastern .....	2'09	2'30	1'85	2'09	2'08	2'21	0'52	0'73	0'38	0'53
„ III. South Midland.....	2'01	2'15	1'62	1'87	1'90	2'31	0'43	0'58	0'51	0'60
„ IV. Eastern .....	1'83	1'97	1'26	1'60	1'54	1'71	0'44	0'54	0'34	0'42
„ V. South Western.....	2'56	2'42	1'57	1'91	1'73	1'99	0'35	0'56	0'40	0'56
Rest of Div. VI. W. Mdlnd.	2'44	2'81	1'94	2'04	1'90	2'30	0'40	0'59	0'35	0'43
„ VII. N. „	1'87	2'13	1'65	1'85	1'50	1'64	0'38	0'50	0'32	0'44
„ VIII. N. Wstrn.	3'77	4'64	1'98	2'31	1'98	2'28	0'35	0'55	0'33	0'42
„ IX. York .....	2'62	3'28	1'70	2'14	1'82	2'18	0'39	0'50	0'40	0'42
„ X. Northern	2'10	2'27	2'10	2'24	1'80	2'02	0'30	0'42	0'39	0'46
Div. XI. Wales, &c. ....	2'43	2'77	1'26	1'63	1'28	1'48	0'28	0'47	0'38	0'48
England and Wales .....	3'09	3'50	1'90	2'19	1'99	2'24	0'47	0'66	0'42	0'54

These last tables are curious, as showing the *unequal fatality* of certain diseases in different places. Lung disease, which was least fatal in the eastern counties, was most so in Liverpool, Manchester, and the Staffordshire Potteries, where the mortality from this cause was almost fourfold.

The *wide diffusion* of the *increase* in mortality from each of the five causes mentioned in these tables is yet more noticeable. Out of 115 cases in the first table (age 35—45) only 11 showed any decrease in the rate of mortality, and 4 a stationary death-rate, the rest indicating increase more or less considerable. The other table, out of a like number, showed 15 instances of decreased mortality, and 1 of a stationary rate.

The cases where the increase in the rate of mortality exceeded 10 per cent. were naturally much fewer than those where there was merely some amount of increase, small or great. It is interesting



to consider what were the places where such marked increase of fatality from the undermentioned classes of disease was observed:—

Disease of lungs, at age 35—45, in London, Liverpool, Manchester, Birmingham, Leeds, Sheffield, Nottingham, the Potteries, Newcastle-on-Tyne, and Leicester; also Rural Divisions VII (North Midland), VIII (North Western), IX (York) and X (Northern).

At age 45—55, in Liverpool, Manchester, Leeds, and Leicester; also in Rural Divisions II (South Eastern), VI (West Midland), VII (North Midland), VIII (North Western), IX (York), and XI (Wales).

Heart disease and dropsy, at age 35—45, in London, Liverpool, Manchester, Birmingham, Leeds, Sheffield, Nottingham, Bristol, the Potteries, Newcastle-on-Tyne, and Leicester; also in every one of the rural divisions.

At age 45—55, in London, Liverpool, Leeds, Sheffield, Nottingham, Hull, Newcastle-on-Tyne, and Leicester; also in all the rural divisions except VI (West Midland), and X (Northern).

Disease of brain, at age 35—45, in Manchester and Sheffield, and in all the rural divisions except X (Northern Counties).

At age 45—55, in Manchester, Leeds, Sheffield, Nottingham, and Bristol, and in all the rural divisions except II (South Western), and VII (North Midland).

We are obliged to conclude, that of these three classes of disease the only one the fatality by which was peculiarly increased in the *manufacturing districts* as distinguished from the rest of the country, was that of diseases of the lungs; the other two classes were much more fatal in the later period, whether in the agricultural divisions or in the more densely peopled divisions to the north and west. Disease of the kidneys and cancer also show a seriously increased rate of fatality, extending to the non-manufacturing divisions.

We find then that the mortality amongst males at ages 35—65 has been increasing, not only in the large towns and manufacturing districts, but also elsewhere; and we observe that this increase has not been largely due to epidemic disease, to consumption, or to diseases of the stomach and liver, but to other causes which have been specified. It remains to be seen whether the increased mortality from the causes in question has been steadily augmenting, or has been subject to much fluctuation.

The following table of annual death-rates amongst males, for England and Wales, will supply an answer to that question:—

Year.	Disease of Lungs.		Heart Disease and Dropsy.		Disease of Brain.		Disease of Kidneys.		Cancer.	
	35—45.	45—55.	35—45.	45—55.	35—45.	45—55.	35—45.	45—55.	35—45.	45—55.
1851 ....	1'50	3'01	0'98	1'80	1'14	1'88	0'21	0'35	0'15	0'35
'52 ....	1'35	2'77	0'97	1'87	1'13	1'90	0'25	0'41	0'17	0'44
'53 ....	1'60	3'34	0'98	1'99	1'20	1'97	0'28	0'47	0'17	0'42
'54 ....	1'42	2'85	1'03	1'93	1'14	1'95	0'29	0'48	0'18	0'43
'55 ....	1'76	3'58	0'97	1'90	1'15	2'03	0'30	0'49	0'21	0'38
1856 ....	1'37	2'73	0'94	1'74	1'15	1'92	0'29	0'50	0'16	0'44
'57 ....	1'47	2'90	0'95	1'82	1'14	2'00	0'31	0'50	0'18	0'40
'58 ....	1'58	3'25	1'06	1'97	1'23	2'08	0'32	0'51	0'18	0'40
'59 ....	1'52	3'20	1'10	1'97	1'20	2'06	0'34	0'53	0'18	0'47
'60 ....	1'75	3'45	1'11	2'10	1'38	2'21	0'34	0'50	0'19	0'50
1861 ....	1'66	3'27	1'10	1'98	1'23	2'07	0'35	0'57	0'19	0'52
'62 ....	1'58	3'30	1'19	2'06	1'23	2'15	0'31	0'58	0'20	0'47
'63 ....	1'59	3'09	1'13	2'03	1'33	2'18	0'37	0'64	0'20	0'51
'64 ....	1'93	3'92	1'27	2'22	1'40	2'28	0'41	0'69	0'19	0'56
'65 ....	1'71	3'59	1'27	2'46	1'41	2'34	0'41	0'65	0'20	0'51
1866 ....	1'70	3'64	1'29	2'22	1'33	2'30	0'46	0'68	0'21	0'52
'67 ....	1'78	3'59	1'25	2'28	1'32	2'29	0'44	0'67	0'21	0'57
'68 ....	1'59	3'18	1'21	2'15	1'33	2'36	0'43	0'70	0'19	0'55
'69 ....	1'82	3'72	1'32	2'32	1'42	2'29	0'44	0'70	0'23	0'58
'70 ....	1'91	3'88	1'34	2'26	1'46	2'31	0'44	0'73	0'24	0'62
1871 ....	1'78	3'83	1'42	2'35	1'42	2'35	0'48	0'74	0'23	0'60
'72 ....	1'74	3'39	1'44	2'42	1'42	2'32	0'50	0'78	0'20	0'67
'73 ....	2'03	3'94	1'52	2'33	1'47	2'39	0'48	0'86	0'22	0'68
'74 ....	2'21	4'45	1'53	2'43	1'46	2'50	0'50	0'81	0'22	0'66
'75 ....	2'52	4'78	1'59	2'61	1'55	2'45	0'52	0'87	0'25	0'70

To get rid of exceptional years, let us compare the *medium* and *minimum* ratios in each period of five years; thus:—

Period.	Disease of Lungs		Heart Disease and Dropsy.		Disease of Brain.		Disease of Kidneys.		Cancer.	
	35—45.	45—55.	35—45.	45—55.	35—45.	45—55.	35—45.	45—55.	35—45.	45—55.
<i>Medium Ratios—</i>										
1851—55 .....	1'50	3'01	0'98	1'90	1'14	1'95	0'28	0'47	0'17	0'42
'56—60 .....	1'52	3'20	1'06	1'97	1'20	2'06	0'32	0'50	0'18	0'44
'61—65 .....	1'66	3'30	1'19	2'06	1'33	2'18	0'37	0'64	0'20	0'51
'66—70 .....	1'78	3'64	1'29	2'26	1'33	2'30	0'44	0'70	0'21	0'57
'71—75 .....	2'03	3'94	1'52	2'42	1'46	2'39	0'50	0'81	0'22	0'67
Increase per cent. ....	35	31	55	27	28	23	79	72	29	60
<i>Minimum Ratios—</i>										
1851—55 .....	1'35	2'77	0'97	1'80	1'13	1'88	0'21	0'35	0'15	0'35
'56—60 .....	1'37	2'73	0'94	1'74	1'14	1'92	0'29	0'50	0'16	0'40
'61—65 .....	1'58	3'09	1'10	1'98	1'23	2'07	0'31	0'57	0'19	0'47
'66—70 .....	1'59	3'18	1'21	2'15	1'32	2'29	0'43	0'67	0'19	0'52
'71—75 .....	1'74	3'39	1'42	2'33	1'42	2'32	0'48	0'74	0'20	0'60
Increase per cent. ....	29	22	46	29	26	23	129	111	33	71

This table demonstrates, I think, that the increased mortality by each of the five specified causes was no mere accident, but arose from some condition of things which if not altered may admit of further increase in the future, to an extent which we cannot measure.

*Summary.*

1. I find that whilst both sexes, especially females, have experienced a diminished mortality during many years past at ages under 25; there has been an increased death-rate amongst males at the ages from 35 upwards, if not commencing earlier, which has raised male mortality at those ages, not only far above the standard of 1856-60, but even higher than the unfavourable rates which prevailed in 1846-50. A similar tendency to increase is observable in female death-rates at ages 45 upwards, but it is much less powerful than that affecting male rates.

2. It appears that in consequence of these changes the probability of attaining a high age has diminished in the case of males, but has increased in the case of females, so that the tendency towards an excess of female population arising is stronger than it was. A National Life Table based on recent data, would consequently deviate considerably from Dr. Farr's English Life Table, No. 3.

3. The changes in question seem to have progressed step by step without much interruption, at all events since 1856-60.

4. The particular diseases to which the increased numbers of male deaths at ages 35—65 were attributed in the Registrar General's Tables, appear to have been mainly lung disease (bronchitis, pneumonia, &c.), heart disease, dropsy, brain disease, disease of the kidneys, and cancer. The ordinary fatality resulting from these diseases in medium or favourable years is shown to have risen considerably.

## DISCUSSION on MR. WELTON'S PAPER.

The CHAIRMAN (Sir Rawson W. Rawson), after alluding to the importance of the paper, said that there could be little or no doubt as to the facts contained in it. With regard to the calculations and deductions Mr. Welton had drawn from them, there were some gentlemen present who would be able to speak with greater knowledge than he (the Chairman) was able to do. Having had the paper in his hands the previous day, it appeared to him so important that he took the trouble to look into it for the purpose of bringing before the meeting a few features which Mr. Welton had not drawn out, and which he would suggest should be drawn out before the paper was published in the *Journal*. He would suggest that the author should give the proportions in several cases. In the first table he showed that the death-rates amongst males and females from the ages of 5 to 25 had been gradually increasing from the quinquennium of 1846-50 to that of 1871-75; but the mere figures did not show the proportions. The author stated casually they were about 25 per cent., and so it was; but it would be very important to draw these out exactly, and so with regard to many of the others. There was one point in the paper which was very tantalising to him. Mr. Welton said, "I have arrived at the conclusions (1st) that the census returns as to ages require to be amended; (2nd) that the approximate proportions of births which annually escape registration are discoverable, and (3rd) that the net results of migrations into and from the country may also be measured." It would have been a great boon if the author had given the information which enabled him to state positively those three conclusions. He would also suggest to Mr. Welton if he would, at the end of his paper, summarise the chief facts and deductions, which, being spread between the different tables, would have to be sought out, and require a care which many persons actively engaged would not be able to give. In the first table, the chief facts with regard to the mean death-rates per 1,000 living seemed to be these. Between the two dates which he took as his extremes, 1846-50 and 1871-75, there had been a uniform increased vitality amongst males and females, and he observed that it had only been checked in one quinquennium, and that only amongst the males, namely, in 1861-65. There was a moderate check in this period, curiously enough, occurring amongst the males, but not occurring amongst the females. That was the first fact—that the vitality of young people seemed, during the thirty years from 1846 to 1875, to have increased about one-fourth. Amongst males of the age of from 5 to 10 there were exactly 25 per cent.; between 10 and 15, 25·9; between 15 and 25, 19·7. Then amongst the females, in the first period it was 29 per cent., being 4 per cent. more than amongst the males; in the second period it was 29·8, and in the third period



247. No mention was made, however, of children under the age of 5. Although it might not accord with the facts which Mr. Welton had brought out in this table, it would be desirable to note in connection with them what the change was with regard to the younger ones. As far as he could make out, there had been an increased mortality; but as the information was not shown in the same form, he had not been able exactly to draw that out. Then came the really important fact in the paper, that the vitality of the men of middle age—the staple of our population—was on the decrease, the cause of which ought to be looked into. The second table showed this very interesting, but very sad statement, that between the ages of 35 and 75 for the first three quinquenniums, there was a gradual improvement. Then there came a change, and each succeeding quinquennium up to the present time showed a falling off to the prejudice of the population. Mr. Welton had brought forward four periods in regard to age: from 35 to 45, 45 to 55, 55 to 65, and 65 to 75. Between the first quinquennium and the third there was a diminution of mortality for those several ages respectively in favour of our population of 7 per cent., 12 per cent., 10 per cent., and 4 per cent. Then the tide turned, and there was a corresponding increase of mortality up to the quinquennium ending in 1875 of 15 per cent., 17 per cent., 16 per cent., and 5 per cent., all to the bad; and comparing the first with the last quinquennium, there was a disadvantage represented by nearly 7 per cent., nearly 4 per cent., 4 per cent., and 1 per cent. Those were the ratios of increased mortality between the years 1846-50 and the quinquennium 1871-75. In that way he should like the several tables to be examined, because the mind could then grasp the changes that had occurred. (Mr. Welton said it would be very easy to do so, but he was anxious not to overload the paper.) The Chairman said the next point of interest which occurred to him was the difference brought out between Dr. Farr's table and the experiences of 1856-60 and 1871-75. He was not competent to judge of Mr. Welton's method; but supposing that Dr. Farr's table was recognised as accurate, and that Mr. Welton had adopted the same method, there would be the following interesting results. It was clear, from the figures as they stood, that Dr. Farr's table corresponded very closely with the experiences of 1856-60, but that, as regards females, it differed materially from those of the later period. Taking the whole of the males and females at the different periods of life, which was the only way of obtaining an average, adding them up and comparing them, he found the following results:—that in 1856-60 the value of male life at all ages by the tables, as compared with Dr. Farr's tables, was  $2\frac{1}{2}$  (2.6) per cent. in excess of Dr. Farr; while among females it was just 3 per cent.; but in 1871-75 it had fallen among males to 2 per cent. below Dr. Farr's table, while among females the excess had increased to 5.4 per cent. These changes, however, varied very much at different times of life. Up to the age of 35 the variations amongst the males from Dr. Farr's tables were +1.45 and +3.1 per cent. at the two periods selected by Mr. Welton. Then from 35 to 55 the differences were +3.13 and +2.37; but

from 55 to 80 there was an increase of 6.1 in the first quinquennium, and a decrease of 2.3 in the second, showing that the advantage which the males had in that period from 55 to 80 over Dr. Farr's tables of 6 per cent., had utterly disappeared, and had become a decrease of 2.3 per cent. With regard to the females, it stood thus: up to 35 they had the advantage in the first period (1856-60) of 1.34; in 1871-75, 3.95, being an increase of threefold in the latter. In the second period of life, 35 to 55, it was 3.31 in 1856-60; and 6.83 in 1871-75, being an increase of double in the latter. Beyond the age of 55 in the first period it was 8.1; and in the second period 8.31; which changes, he thought, afforded sufficient evidence that it became very necessary from time to time to examine life tables, and adapt them to circumstances. Always providing that the methods adopted by Mr. Welton in his paper were reliable, there was nothing to find fault with in his deductions from the facts on which his calculations are founded. One other point he desired to refer to, was the very remarkable change in the prospect in the life of women during the period of child-bearing. It would be seen that between the ages of 15 and 35 during the first quinquennium of 1841-45, there was an excess in the death-rate of females above that of males amounting to 270 in 4,000. In the next quinquennium it had decreased to 241; in the next to 200; in the next to 170; in the next to 71. In the sixth quinquennium the mortality was 73 less amongst the females than amongst the males; and in the last, viz., between 1871-75, the mortality was 218 less; so that whereas forty years ago the mortality amongst females at the age of child-bearing was 270 more in 4,000, or nearly 7 per cent., in 1871-75 it was 218, or nearly  $5\frac{1}{2}$  per cent. less, a change amounting to 12 per cent. Such a fact, if on examination it should prove to be accurate, led to the inference that there had been some very great change for the better in the treatment of women during that critical period. True (as Mr. Welton here interposed) the difference may have been caused in a considerable measure by an increase in the mortality of males. The males were dying in so much greater proportion than formerly that it affected the ratio of male and female; but he had little doubt that improved methods of treatment had beneficially affected the value of female life at this stage of it. He had made a calculation in reference to the last table. Mr. Welton considered that diseases of the lungs, brain, kidneys, heart, and cancer were the five that had most increased among males at the ages from 35 to 55 during the period named. He (the Chairman) made out that such increased mortality, as shown by Mr. Welton, caused by disease of the lungs during that period was 10 per cent.; by heart disease and dropsy  $7\frac{1}{2}$  per cent.; by disease of the brain nearly 7 per cent.; by disease of the kidneys  $6\frac{1}{2}$ , and by cancer  $16\frac{1}{2}$  per cent. He hoped some of those present would be able to give reasons for the peculiar increase of these diseases, and also for the increase of mortality amongst males at this period of life. Coming from abroad, he might be ignorant of the real state of things; but it appeared to him that it might be accounted for in some measure in

this way. There had been an improvement in the earlier stages of life, from 5 to 25, but there had been a marvellous increase of mortality amongst males between the ages of 35 and 75. It occurred to him that the improved vitality which seemed to occur at earlier stages might be accounted for, first, by the introduction of improved sanitary measures, of schooling, and of legislation regulating the employment of young people, all tending to the improvement of their condition; and, secondly, by the improvement in the rates of wages, which had benefited the families, the wives, and the children, more than the adult males themselves. There had also, in later years, been an increase in the wages earned by the children themselves, which enabled them to live better than formerly. But with the increase of wages beginning at the period of 1861-65, there had been an increased activity—perhaps excessive exertion—on the part of the labouring population, also excessive living, which had led to dissipation and weakened physical powers, which was now telling upon them at an advanced period of life. It struck him that this might be a partial explanation of one cause of this very remarkable change. Whether or not that was a possible cause, Mr. Welton's facts could not be put forward in too powerful a light.

Mr. A. H. BAILEY (President of the Institute of Actuaries) said that while appreciating highly the pains and research Mr. Welton had bestowed on the subject, he was quite unable to accept the conclusions at which he had arrived, as he did not think the data employed were available for the solution of the questions the author had been investigating. In order to determine rates of mortality, two things were necessary: first, accurate information of the number of deaths in any country or district in a year or any definite period of time; and secondly, the number of living population at the periods in which those deaths had arisen. He did not think it could be doubted that in this country the deaths were accurately registered, and that the censuses taken at intervals of ten years gave as accurate enumerations of the living as could be attained in any similar large operation. By observing the increase in the rates of population, there could be determined within a reasonable margin of error the numbers living in intervening years. By these data the annual mortality of the country as a whole could be obtained with considerable accuracy. Some time ago, in making some investigations for another purpose, he wished to know, amongst other things, what had been the changes in the English rate of mortality. Discarding the first two or three years of registration, he thought it advisable to divide the subsequent period into intervals of ten years: 1840-50, 1850-60, 1860-70, and the result was that there had been no change whatever in each of those ten years in the general mortality of England. Since 1870 he was aware there had been some improvement, but they had not got to the end of another ten years. This result was in accordance with a multitude of other observations that had been made, and went to show that it was a mistake to suppose that there had been any material change in the rate of mortality in this country, a notion



which arose from some inaccurate observations made last century in the number of deaths alone. For Mr. Welton's purpose it was not only necessary to know the whole number of deaths, but also the number of deaths at particular ages. Whilst he (Mr. Bailey) willingly admitted that the number of deaths was accurately registered, he could state, from the certificates passing through his hands, that the ages at death were very far from being accurate. It was even more difficult to ascertain the ages of the living population in the intervals between the censuses. Emigration was a disturbing element; there were far more male than female emigrants, and far more amongst the younger than the elder portion of the population. Emigration did not follow any law, and therefore taking any such estimates as these to ascertain the rate of mortality at particular ages would produce results which would, he believed, be altogether at variance with the facts. He should say, therefore, that those rates of mortality Mr. Welton had brought out were not to be depended upon at all. It would stagger those who had experience of insurance societies to be told that in 1846-50 the death-rate among females between the ages of 15 and 25 was 8·9 per 1,000, and that in 1871-75 it was 6·7. This was at variance with other observations, and this sort of result ran through the whole of Mr. Welton's calculations. Therefore, although he had listened to the deductions of the chairman, he doubted the premises. Of course there were variations in the rate of mortality in particular years, but he thought the changes were small when a long period of time was taken into account. As to the very interesting part of the paper referring to diseases, there were others who could more competently deal with it than himself. There were, no doubt, particular diseases that had altogether disappeared. They never heard of the plague now, and the ravages of small pox were less than they were two generations ago; but other diseases seem to have taken their place. (The Chairman having pointed out that according to Mr. Welton the zymotic diseases had decreased 23 per cent.) Mr. Bailey said it would be interesting to know whether other diseases, such as diseases of particular organs, had increased.

The Rev. I. DOXSEY said he was sorry that he had not known the subject of the paper, because he would have brought with him some calculations he had made from the registrar-general's reports on this very question; but the general conclusions at which he arrived were to some extent in harmony with those at which Mr. Welton had arrived. There had been an obvious improvement in the death-rate from 5 years of age to 45 among females, but only to 25 among males, above which it had increased in every decennium. He thought there were certain facts in regard to our manufacturing life that were perhaps unfavourable to the prolonged life of children. It was well known that when women worked in factories, infant children did not get the attention they required, and it was a remarkable fact, that while an increase of about 5 per 1,000 had taken place in children under 5 years of age, there was no perceptible difference between the male and female children in regard to increase. These facts might tend to show that the weaker



children were cut off in the earlier periods of life; and in harmony with the law that had been called "the survival of the fittest," the children that had escaped the discipline of early life might be those born stronger, and therefore that might in some measure account for the improvement of the death-rate at the ages to which the Chairman and Mr. Welton had referred. From a valuable paper by a medical gentleman, to whom the Howard Medal had been awarded, he (Mr. Doxsey) had come to the conclusion that there had been a similar increase in the death-rates in hospitals in the later periods, as compared with the earlier ones, and the death-rate had increased more among the males than among the females. This was in perfect harmony with the law laid down in the paper. He thought there could be no doubt that as there had been only a slight increase in the death-rate among females between 45 and 65, but in the male death-rate at all ages above 25, that therefore there must be some cause or causes operating among males which did not affect females. The search for these causes seemed to be the object of all statistical inquiry on the subject; but what those causes were he did not pretend to say. He did not think it arose only from the increase of drinking, which in later years had taken place more among females than males, and yet the death-rate among males had increased faster than the death-rate among females. He did not believe that the working classes worked harder now than they did forty years ago. Perhaps they drank harder, and that might partly account for the increased death-rate. Another cause might be the vast increase in the use of tobacco among boys. He should be thankful to know the relative proportions of male and female deaths from those diseases that had so much increased, and which would account for the greater ratio of increase of the death-rate among males than females. He believed that in the registrar-general's report, to which he had referred, they were all put together. If the registrar-general's report were compared with the essay on the increase of the death-rate in hospitals, there could be no doubt of the general principle laid down in the paper, that the death-rate was increasing to some extent, and that the increase was principally among the male population from 25 years of age to the later periods of life. The only other increase was amongst children under 5 years of age, and that was equal in both sexes.

Mr. CORNELIUS WALFORD said he had hoped that the scope of the discussion would have taken the turn of seeing how far the results given in the paper harmonised with any facts which could be brought to bear by way of solution of them. It seemed to him the broad fact stated in the paper was that the death-rate up to the age of 25 had lessened on the whole, and that beyond those ages it had much increased, more particularly amongst males. If so, there must be some reasons for it, but he had heard none stated in the course of the discussion. He thought that the increased mortality under 5 years of age was generally believed to result from more complete registration at those young ages. His own belief, however, was that the actual deaths under 5 years of age had been less rather than more of late years, and that this resulted from

improved medical science, which kept children alive until they arrived at the age of puberty, when they died. While, therefore, it changed the figures, it did not do any permanent good to mankind. Another circumstance which very much affected the ages in the direction indicated by Mr. Welton, was the emigration of young, active, strong men at the ages of from 15 to 25. This would seem to him to leave a weakened population at ages beyond, and that weakened population would show a larger mortality than if the more vital portion of the population had remained, but this was no new feature. The present generation had not been distinct from the preceding generation in that respect, and therefore although it had some weight, it by no means accounted for the peculiarity mentioned in the paper. One had also to look how far the habits of the people or the customs of trade had affected the vitality. He thought that the drinking customs of the country had a great deal to do with it. These customs had resulted from the increase of wages that had taken place in the present generation, and the death results from drinking habits were coincident with the period Mr. Welton had alluded to. Assuming the drinking theory to be true, he thought it applied much more to the males than the females. Another circumstance to be taken into account was the adulteration of food which had been carried on to a much larger extent before the Adulteration Acts were passed. That, however, would apply as much to the females as the males, because although females did not drink so much as the males, they probably ate a little more. That case of adulteration would not meet Mr. Welton's theory at all. He confessed that, after a consideration of all the points, there was nothing in itself, singly or in combination, which could account for this state of things, and he had come to the conclusion that there was something or other Mr. Welton had failed to discover which would go to show that his facts were reliable, unless indeed the drinking theory was held sufficient to account for it all.

Mr. N. A. HUMPHRIES, after alluding to the value of the paper, said that during the past thirty-eight years there had been a continual increase in the mortality of males at all ages. In equal numbers living, the relative mortality of males from 1841-50 was 107 to each 100 deaths of females; in the next ten years it was 108; in the next ten years it was 111; and in the last seven years of the current decade it had increased to 113 to 100. With regard to the particular ages at which the increase had occurred, he thought Mr. Welton had brought a great many facts together which might probably be made very great use of. The second speaker had expressed a decided opinion that there was no change in the general death-rate; it was a fact that the mortality remained nearly stationary during the three decades 1841 to 1850, 1851 to 1860, and from 1861 to 1870; but taking into account the vast increase of aggregation in towns, the fact that mortality was stationary was in itself evidence of good sanitary work. There must have been some counteracting influence at work which kept it stationary. Looking at the present decade, of which only nine years had

passed, a vast improvement was observable. In 1872-75 the Public Health Acts were passed, and a new era of sanitation was thereby introduced into England. The registrar-general in his last quarterly report, pointed out that 150,000 persons had survived during the last nine years who would have died if the mortality had been the same as it was during the preceding thirty years. The excessive increase of mortality amongst males was very striking. The diseases which caused this increase appear to be the very diseases which are often induced by intemperate habits. He personally thanked Mr. Welton for the trouble he had taken with his paper, which was one of the most useful of its kind that the Society had ever had before it. (The Chairman having asked Mr. Humphries whether, from his experience in the registrar-general's office, he saw any ground of fallacy in the principal point brought out in the paper, that there was increased mortality amongst males and not amongst females between the ages of 35 and 65), Mr. Humphries said that the fact was beyond all dispute.

Mr. PHILIP VANDERBYL expressed his regret that the author did not conclude his paper with a summary statement of the results proved by the numerous tables. In the table enumerating the causes of increased mortality amongst males from 35—65 the author did not show how the diseases named had affected females, or the different percentages of increased mortality from certain diseases. He believed that the increased use of machinery and the more dangerous occupations of men would partly account for the increased mortality amongst males. With regard to the improved death-rate among females, he thought that was to be accounted for, not only by the improved medical skill, but more especially by the use of chloroform. As to the causes of death amongst females, it was an extraordinary fact, that on account of the male infant's head being on an average only half an inch larger in circumference than that of a female, if all the births in Great Britain during one year were females, 5,000 lives of mothers would be saved in that time. This was calculated by the late Sir James Simpson, of Edinburgh, who first used chloroform as an anæsthetic. It had been often said that we could prove anything by statistics, but he did not consider that the Society was established for such a purpose, and certainly the author of the paper did not exhibit any tendency to prove any preconceived ideas.

Mr. H. MONCREIFF PAUL said that the author, in his paper, had stated that "On the whole, then, the tables show that the striking abatement in mortality at ages from 5 to 25 has been attended with an aggravation of the loss by death at higher ages, putting aside epidemic years, and that such aggravation has been far more considerable amongst males than amongst females. Every circumstance which will help us to measure the extent and to understand the causes of this deterioration in the vitality of males demands our attention." Although the author had said "every circumstance," he (Mr. Paul) did not see in the paper any single instance given except the reference in the tables to certain diseases. On looking



to these tables, it would be seen at once that these were brain and heart diseases, from which deaths at the "higher ages" of males had, in the later periods under comparison sensibly increased. He referred more particularly to the last table. It would be seen also that these diseases were due to certain causes. Allusion had been made by a previous speaker to the shortening of working hours, but attention had not been drawn to the compression of work. There was too much of that in the present day, and the consequent strain really affected the vital powers, as did also the excitement arising out of constant railway travelling and the using the telegraph system, with all their concomitant evils. If these questions were looked at more carefully, results would be found quite in keeping with the deductions drawn by the author.

Mr. BOURNE thought that more importance ought to be attached to Mr. Welton's statistics with regard to specific ages, than probably Mr. Bailey would seem to accord them. There was no doubt whatever that sanitary measures and medical skill had done much to preserve younger as well as older life; but as far as middle age was concerned, it was quite true that the mode of life in the present day had very much to do with increased mortality at the period when life ought to be the strongest and most vigorous, and that it operated much more unfavourably upon males than upon females. No doubt drinking was a very important element in the matter. As a temperance reformer, however, it was a source of great gratification to him that there was a very great diminution in the consumption of alcohol among the mass of the population, as evidenced by the failure of the revenue. He would ask Mr. Welton if it had ever occurred to him to compare the deaths which took place with the marriage rates. The age at which men married had been very much extended, whereas females were now married rather earlier than formerly. This, he thought, arose very much out of habits and practices which tended most materially to affect the health of the males. In support of this proposition, he cited the opinions expressed by Mr. Ansell, the well-known actuary, in a book published by him some years ago on the statistics of families in the higher and professional classes. He (Mr. Bourne) had taken three periods of three years each. In the first of those periods the number of marriages among the population was 1 in 123; in the second, 1 in 121; and in the third 1 in 117; showing that the number of marriages in proportion to the population was increasing. Mr. Bourne then adduced some figures to show that while the age of matrimony was deferred in the males, it was not in the females, and that seemed to point to habits of life which would deteriorate the vital power of young men, and to account for the increased number of deaths amongst them more than amongst females. The increase of wages was also another cause; but he took it that it was more favourable to females than to males. It was true that the males were subjected to a strain of increased hurry and increased strain upon their health, arising partly from labour, but he believed in a far greater degree to the pursuit of pleasure and a deterioration in their habits and practices. With regard to females, the



effect of easier circumstances had been to lessen the amount of labour they had to perform, and to put them in more comfortable homes, surrounded by more comfortable circumstances; therefore it might be expected that female life would be prolonged, and the death-rate improved with regard to them to a greater extent than males. So far the inference to be drawn from that would bear out the conclusions demonstrated by Mr. Welton's figures. He (Mr. Bourne) believed in the fitness of our organisation and the exercise of our powers in obedience to natural laws; therefore that the true happiness and welfare of any community very much depended upon the fulfilling of the divine command: "Increase and multiply and replenish the earth."

Dr. C. E. SAUNDERS said he concurred entirely with the remarks of Mr. Bourne. He pointed out that it was acknowledged in our lunatic asylums that many cases of general paralysis of the insane, and of degenerative diseases of the nervous centres, were due to sexual excesses.

The CHAIRMAN then laid before the meeting, in connection with the remarks of the last speaker, a statement as to the rate of increase in the different kinds of diseases, for the purpose of guiding any further discussion that might take place on the paper. He stated that, according to the table at the commencement of the third section of Mr. Welton's paper, the increase in the annual death-rates among males between the ages of 35 and 65 in the year 1875, as compared with the average of 1851-60 (the value of the comparison being diminished by the contrast of a single year with an average of five years) was as follows: from diseases of the kidneys, 86 per cent.; cancer, 69 per cent.; lung diseases, 37; heart disease and dropsy, 36·5; brain diseases, 31; diseases of the stomach and liver, 8; phthisis, only 3·5 per cent.; while from scrofulous diseases there was a decrease of 41 per cent., and from zymotic diseases a decrease of 23 per cent. The average increase from all causes was 22 per cent.

Mr. LAWSON thought that the remarks as to the increase of diseases ought to be received with a certain amount of caution, because in the periods to which the paper referred there had been a considerable alteration in the nomenclature of diseases, and also a great improvement in the means of distinguishing them. Several speakers had remarked that the diseases amongst men had increased as compared with women, but the reports of the registrar-general show that among male children under 1 year of age, there was a decidedly greater mortality from all the ordinary children's diseases, except whooping cough, than amongst females. In the service to which he belongs there was a benefit society. In connection with it an inquiry was made some years ago, and it was found that the mortality amongst the single men was about twice as great as it was amongst those who were married. This fact was borne out by an examination made by the registrar-general for Scotland about twelve years ago. As to the causes of the higher mortality among

unmarried men, no doubt they lived more freely in every way, and that told upon their health. Greater indulgence, consequent on the increased wages of late years, produced a gouty disposition, to which much of the increased mortality from bronchitis seems attributable.

Mr. ROWLAND HAMILTON pointed out that a large proportion of the males of marrying age who were in feeble health, remained unmarried, while the whole death-rate, so to speak, of these was added to the class of bachelors, which would very materially alter the conclusion come to by a previous speaker.

Mr. WELTON, in reply, thanked the Chairman for the analysis he had made of the paper. In regard to Mr. Bailey's observations, he said that no one could impeach the accuracy of his (Mr. Welton's) figures without impeaching the registrar-general's reports, from which they had been taken. Speaking of the causes of disease, he thought that drink was one of the most potent in bringing about a state of things conducive to bronchitis. Hard work and excitement at the present time no doubt told upon many men, more particularly the middle class. The table showed that the increase in the number of deaths by accident was a mere fraction to that occasioned by disease. He believed that in substance the registrar-general's tables were correct. In answer to the supposition of the Chairman, that the methods adopted by him (Mr. Welton) were similar to those of Dr. Farr, he might say that he had followed a process which was perhaps more simple than that adopted by Dr. Farr, in framing his life table, but whatever method was employed, he believed the results arrived at could not vary much from those shown in the paper.

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## MISCELLANEA.

## CONTENTS :

	PAGE		PAGE
I.—Financial and Commercial History of 1879 .....	95	VI.—Rates of Life Insurance Premiums .....	123
II.—Fires in the Metropolis during the Year 1879 ....	109	VII.—Report of a Committee on the Census of 1881.....	134
III.—English Literature in the Year 1879 .....	114	VIII.—Notes on Economical and Statistical Works .....	139
IV.—German Literature of 1878 and 1879 .....	116	IX.—Notes on some of the Additions to the Library	143
V.—Emigration and Immigration in the Year 1879 ....	117	X.—A list of the Additions to the Library .....	147

I.—*Financial and Commercial History of 1879.*

THE following introduction by Mr. R. Giffen is taken from the Supplement to the *Statist* of 31st of January, 1880 :—

*The Trade Revival—The Harvest Failure and other Events—The Rise in Silver—The Drain of Gold to America—Scientific Improvements—The Prospect of 1880.*

“Financially and commercially, 1879 has been a most remarkable year. Commencing amid the shadows cast by the great City of Glasgow Bank disaster in the autumn of 1878, with credit at the lowest ebb, with all kinds of quack remedies for depressed trade gaining attention from a suffering community, it promised during the earlier months to be one of the most memorable years of depression on record. Credit was so slow in recovering that, even after the turn of the half-year, there were fears of new commercial failures on a great scale, while the harvest prospects became gloomier and gloomier as the season advanced. There were signs, even in the early summer, that the current apprehensions expressed were exaggerated, and this journal was honourably distinguished among its contemporaries by dwelling on the facts and their extreme significance; but they were quite insufficient to alter the general feeling of gloom. Late in autumn Mr. Chamberlain, at Glasgow, and other authorities, were still looking forward to a winter of continued depression and suffering, and ridiculing the very notion of a turn in business affairs being in prospect, much less actually in progress. But with the autumn, in spite of the harvest proving one of the worst on record, the wheat crop being almost a total failure, the long delayed reaction came. One of the earliest promises of improvement had been the demand from the United States for various articles of manufacture, particularly for iron manufactures, and in September the orders were on such a scale as to precipitate a great rise in pig iron and other products of the iron and coal trades. Attention once excited, the movement was extremely rapid, orders pouring in for shipbuilding and other

requirements, and speculators, as usual, joining in the game. In another month the movement was found to have extended itself to the other metal trades; to the various raw materials of our textile and other industries, including 'chemicals;' to numerous articles of general consumption, such as tea, sugar, butter, and cheese, as well as grain, all determined more or less by harvest failures, but assisted somewhat by the general reaction which had set in. The commercial improvement was also accompanied by a great rise on the Stock Exchange, especially in English railway shares, where improvement was stimulated by the actual increase in railway traffic incidental to the trade revival. In the end, before the year was out, it was found that the reaction in business had been one of the most wonderful on record, the recovery from the lowest summer price in iron and many other articles being extreme, and the animation in almost all the heavy trades being in singular contrast to the stagnation at the beginning of the year. In the result, then, 1879 is distinguished by its having witnessed the commencement of a trade revival unusual for its suddenness and distinctness, although for a long period during its progress the anticipation was that it would be a year of stagnation and disaster, and there was much, not only in the extreme discredit and disorganisation of business which existed, but in the actual out-turn of the harvest itself, to justify the anticipation.

"A great economic movement like this would have been enough to distinguish any year, but 1879 has also witnessed other economic changes and events of importance. The miseries caused by the unlimited liability of shareholders in the disastrous case of the City of Glasgow Bank led to the passage of an Act for enabling unlimited banks to become limited; under which Act many of our most important banking institutions, including the London and Westminster, London and County, and National Provincial Banks, have already limited the liability of their shareholders, have begun to record the word 'limited' after their names, and to admit the audit of their accounts as prescribed by the Act. When one thinks of the objections to the word 'limited' which formerly prevailed, so considerable a change in the banking world in a single year becomes every way remarkable. The harvest failure, to which reference has already been made, was also of singular importance, both from its magnitude and the new conditions of business it illustrated, including the receipt in Europe of unprecedented quantities of American wheat at comparatively moderate prices. That in a year when the English wheat harvest, upon the lowest acreage on record, yielded a result less than the average, variously estimated at from 30 to 50 per cent., the average price of wheat should still be far indeed from famine prices, is extremely noteworthy, while attention has been forcibly drawn to it by the coincidence of a trade revival with the depression in agriculture itself. Another noteworthy circumstance of the year has been a recovery in the Indian trade, due evidently in part to the material progress of the Indian people, which becomes manifest in a non-famine year, and in part, as we believe, to the final destruction in 1878 of the bad financing which has been the bane of this trade for years. Partly,



too, as a consequence of this Indian trade revival, there has been a recovery in the price of silver in 1879, which occurred very opportunely to confirm the refusal by the Government of Colonel Smith's strange proposal for meeting the evils inflicted on India through the fall in silver by a restriction of the rupee coinage, and to put an end to fresh propositions for a bi-metallic conference and other bi-metallic projects, which made a noise when trade was dull. Among other economic events of interest, there have also been the improvement in Egyptian affairs through the deposition of the late Khedive, and the appointment of English and French controllers, whereby the extension of the evils of the defaults on foreign loans has been prevented; the success of the Chilians in their war against Peru, which has improved Peruvian as well as Chilean finance, because the guano and nitrate deposits of Peru have passed into the hands of a comparatively honest Government; the improvements in the manufacture of steel and increased use of steel as a substitute for iron; and other changes. Last of all, as affecting directly the money market, and with it the general economic movement, we have to record as one of the leading events of 1879 the occurrence of a great drain of gold to the United States, the obvious result of the conjunction of great prosperity there with the resumption of specie payments; the demand for more currency, due to prosperity, necessarily taking the shape of a demand for gold. All these events combine to make the year 1879 of singular interest, not only to the business man, who wishes to find in the records of the past and the present a guide to the conditions of business in the immediate future, but to the student of economics, who finds in the events of the year new illustrations of old problems, as well as suggestions of new ones.

"We may be expected to add, perhaps, that events in the political world have also had an important economic bearing; that the finance of the Zulu and Afghan wars is a serious matter; that the deficits of the Chancellor of the Exchequer are alarming, and so forth. But we perceive no necessity for mixing up politics with business. Without depreciating the importance of such financial questions in their own place, we can easily recognise that any outlay on Zulu or Afghan wars which has occurred is immaterial in a business view—that business will ebb and flow pretty much the same whether we have little wars or not; one of the worst dangers of these wars in a political view arising perhaps from the circumstance that they are wars 'with limited liability' and of little economic importance. There is one set of political events, however, which may become economically of great importance, perhaps not so much to this country as to the other nations of Europe generally. We refer to the alliances and negotiations in progress, or alleged to be in progress, between Austria and Germany on the one side, and Russia, France, and Italy on the other. Good city authorities hold that in all probability another war is brewing in Eastern Europe, which may become a general European war. Such an event would have effects of first-rate consequence in the economic order, and the share of 1879 in preparing them cannot be overlooked.

“The Trade Revival.

“Dealing in their order with the events thus enumerated, we begin with the ‘Trade Revival.’ As regards the description of the event we have very little to add to the brief sketch already given. There were signs of it, as we have said, as long ago as the beginning of last summer, the *Statist* of 24th May last having an article openly headed ‘Trade Revival.’ Chief of these signs was the increased purchasing on American account; but there were also signs of betterness in the Indian trade, and the general tone was a little more cheerful, although there was still much talk of discredit. All this, however, did not prevent the reaction, which became marked in September, having a sudden and even startling character; so much so that the share of speculators in it was denounced with no little indignation. But denunciation had no effect in stopping the movement. First in the iron trade, as the American demand was felt, there was a great outburst of speculation, Scotch pig iron jumping up from about 45s. to 67s. in a few weeks, and remaining not far under 60s., although it was only towards the end of the year that the extreme price touched in the first burst of speculation was again reached and exceeded. Then came a burst in tin, copper, and the metal trades generally, followed in October and November by great excitement in Mincing Lane, both in raw materials and articles of general consumption. All the while there was an equally striking and rapid advance on the Stock Exchange, the revival of trade coming at a time when hope had been almost extinct, and when no possibility of improvement had been discounted. When the speculators began to operate, therefore, there was no stock, as the phrase is, and prices were accordingly bid up by ‘leaps and bounds.’ Whatever the cause, there can be no doubt of the suddenness and magnitude of the rise of prices—which is fully indicated, we may add, by the tables in the appendix to this history, showing the monthly prices of the leading wholesale commodities, as well as the prices at different dates throughout the year of the leading Stock Exchange securities.

“Without repeating the figures in detail, we may refer the reader to these tables, noting only one or two conspicuous changes. Thus, the prices of metals per ton at the end of each month in the second half of the year were as follows:—

	Scotch Pig Iron.		Staffs. Bar Iron.		Sheets, Single.		Copper, Chili Bars.		Lead, Sheet.		Tin, Straits.		Tin Plates, I. C. Charcoal.	
	s.	d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.
July .....	40	8	6	12 6	8	5 -	53	- -	14	- -	64	7 6	23	10 -
August ....	43	1½	6	12 6	8	- -	54	7 6	14	15 -	68	15 -	24	10 -
September	55	-	6	15 -	8	- -	57	7 6	15	15 -	73	5 -	25	10 -
October....	52	6	7	5 -	9	5 -	65	5 -	17	15 -	93	5 0	28	- -
November	58	7½	7	7 6	9	5 -	66	2 6	17	17 6	92	5 0	28	- -
December	67	3	8	5 -	9	15 -	66	- -	19	10 -	90	17 6	30	- -

“Thus, in almost every case, after all the intermediate fluctuations of speculation, the price at the end of the year is higher than

in any previous month, and the rise is generally from 25 to 50 per cent. Since the beginning of the present year there has been another move upwards, which renders all the stronger the evidence of the prices alone as to the steady demand in the trade. Speculation is quite incapable of bringing about so steady and prolonged a change. Similar tables could be made up for other commodities, though the change in iron and metals happens to be most striking.

“As regards the Stock Exchange, the conspicuous rise has been in English railways, of which the following will give an idea :—

	Price, 27th June, 1879.	Price, 30th December, 1879.	Rise.
Caledonian .....	97 $\frac{1}{2}$	105 $\frac{3}{4}$	8 $\frac{3}{8}$
Great Western .....	95 $\frac{3}{8}$	112 $\frac{1}{4}$	16 $\frac{5}{8}$
London, Brighton, and South } Coast ord. ....	127	135 $\frac{1}{2}$	8 $\frac{1}{2}$
London and North Western Railway	142 $\frac{3}{4}$	149	6 $\frac{1}{4}$
Metropolitan .....	117	123 $\frac{3}{4}$	6 $\frac{3}{4}$
North Eastern .....	132 $\frac{3}{8}$	148	15 $\frac{5}{8}$

“Here, again, it may be remarked that the advance has been sustained, and far more than sustained, during the present year. Speculation alone, without any solid support by real holders and investors, is incapable of any such feats.

“There being no question, then, of a reaction in trade of great magnitude having occurred, we may confine ourselves to inquiring what has been its real extent and causes. Surprising as the statement may seem after some of the discussion which took place when the speculation was going on, we are inclined to say that the improvement is very nearly universal among the industries of the United Kingdom. The agricultural industry is a conspicuous exception, though perhaps, as we shall see, the agricultural depression has been itself exaggerated ; but with that exception there is improvement almost everywhere. In proof the reader can only be referred to the tables of prices already cited, and the trade circulars quoted in the appendix. When we find leading firms in a wide variety of trades and manufactures all reporting improvement, and all speaking hopefully of the future, it is impossible to suppose that they are all writing under a delusion. Look only at the list of trades as to which this cheerful report of rising prices and increasing employment for capital and labour is made :—

Iron and coal trades.	Leather.
Shipbuilding.	Colonial produce (tea, sugar,
Shipping.	dyestuffs, &c.).
Cotton.	Chemicals.
Woollen.	Metals generally.
Linen.	

“Admitting the magnitude of the agricultural industry, and that the great building trades are also rather dull, it is plain that in the above large groups an immense mass of the capital and labour of the country is employed. The iron and coal trades alone



come next in importance to the agricultural industry; and with the textile industries all improving, as well as the various metal manufactures and 'chemicals,' what the statement implies is, that the metropolis, Yorkshire, Lancashire, Durham, Northumberland, a large part of South Wales, Cornwall, the manufacturing districts of Scotland, and Ulster, have their chief industries in a prosperous and improving condition. In other words, the bulk of the country has become more active than it was, so that, allowing for the agricultural depression and the dulness in the building trades, the gains exceed the losses. As in such matters it is the strongest that wins, the fact that so much trade is better makes it likely that the prosperous industries to some extent are drawing the unprosperous after them—that depression in agriculture, for instance, is less than it would otherwise have been, because of the reaction around it, and will probably be less enduring.

"This last remark brings us to the question of the cause of the great movement. Unless an intelligible explanation can be given of it, accounting for the facts, it will be impossible to give any reason for anticipating its continuance or stoppage. It will be all a mystery, even to the business men whose sound instincts enable them to make a profit of the events. But we believe it is possible to give an explanation, especially as some reasons for anticipating a revival were given in the *Statist* before the event took place. It is easy to prophesy after the event and invent *ex post facto* explanations, but not so easy to give the explanations first. This is, however, what the *Statist* has done in the present case. In the issue for 21st June last we read:—

"It remains to be seen whether the complete trade revival which we are all expecting will come in time to prevent another semi-crisis. It seems to be an even chance, it may be admitted, that the revival will come in time. There are many favourable symptoms, of which the prosperity of the labouring classes, including the agricultural labourers, notwithstanding the bad times for farmers and landowners, is one of the most important."

"Under the date of 28th June, we read:—

"As the summer passes, the question of the harvest prospects becomes more and more alarming. It is all but certain that a good harvest, or even a harvest slightly under the average, would revive trade, and, as a natural consequence, send up the prices of stocks and shares and investment property of almost every description. Things have been so bad, and prices have got so adjusted to the badness, that even something not so good as the average might have this effect. But the chances seem all against us, and we may have to make up our minds to another disappointing year.

"Still it is possible that the general causes tending to improve trade in England may be so strong that even an untoward harvest event will not wholly neutralise them. The conjunction of low prices of agricultural produce with bad seasons is so unusual that it is difficult to predict what the general effect on trade will eventually be. At first, while there have been other causes of general depression at work, the conjunction seems wholly unfavourable. It specially depresses the agricultural interest, and adds to the general



gloom. But cheap food is the main question after all, and probably it will be found, after a time, that while good or bad harvests at home are make-weights in the general account of prosperity, or the reverse, they are not all important. This appeared to be the case in years of activity like 1871, 1872, and 1873, when the harvests were under the average, and the same result may again be witnessed. It is certainly a most interesting economic problem whether trade can revive without a good harvest, and the autumn of 1879 may perhaps be destined to furnish a solution.'

"Under the dates 12th and 19th July and 2nd August we have remarks to the same effect, coupled with the notice of an opposite opinion as then prevalent on the Stock Exchange. Finally, on 9th August, we read :—

"The question of revival, though connected with, is not exclusively dependent on what the harvest at home may be. Just in proportion to our increasing dependence on foreign food supplies will be our independence of home harvests for the adversity or prosperity of our aggregate trade. Good harvests abroad, increasing the surplus which foreigners send us, will increase *pro tanto* the purchasing power of our foreign customers. The purchases foreigners make will accordingly affect our home trade, as the purchases of our agricultural classes at home will affect it.'

"There is much more to the same effect, but the above will give an idea that trade revival was anticipated on account of the general cheapness that prevailed, and the fact that some of our important foreign customers were profiting by a good harvest. In other words, all the conditions of revival were present, except a good home harvest, and as that element was believed to be less important than it had been, the conclusion was reached that a bad harvest would not prevent revival. This conclusion may now be considered a settled one. There could hardly have been a worse season than last year's, yet trade revives. Coupled with the similar independence of trade on good harvests, shown in former years, this last event has the effect of a crucial test. We must not, of course, rush to the conclusion that the old economists and statisticians were wrong in dwelling on the connection between harvests and trade, or that good and bad harvests are now of no consequence. On the contrary, the old authorities, men like Quetelet, Tooke, and others were demonstrably right. In the circumstances of most countries, even including England, a good or bad home harvest used to be all-important for trade. The agricultural interest was relatively far more important than it is now, while the price of food depended on the home harvest because only a relatively small supply was obtained from abroad. All that has happened is that English circumstances are changed. England has become a country where the agricultural population is only about a tenth of the whole, while the price of food is not regulated by the home harvest but by the foreign. It is the circumstances which have changed and not the teaching of economists. And good harvests at home still remain important on account of the great importance of the agricultural interests. A tenth part is undoubtedly a large section of the people, while probably, in ordinary years, their net

wages and profits, including rent, exceed a tenth part of the national income. The prosperity or adversity of such a class must always be a material factor in a question of general trade prosperity or the reverse.

“But what, it may be asked, are the usual causes of a revival in trade which the occurrence of a bad harvest at home has not been powerful enough to neutralise? It is easy to say that cheap food, and cheapness generally, tend to produce revival, but in what way? To this, also, an answer can easily be given. The general effect of years of depression is to check production. In the course of time, most articles come to be sold for a season at prices which are below the average necessary to maintain the production. The actual falling off of consumption in many directions may really be very little, but a slight excess of supply is enough to produce a great fall in the market. Production is consequently checked at the very time cheapness enables annuitants and capitalists to save more than in busier times, and when the reduced wages of the labouring classes may even go farther than the higher wages of the busy seasons. At a point which it would be impossible to determine beforehand, since no one can tell what the minimum consumption will be even in the worst depression, and it is probable that the minimum changes with the circumstances of each case; still at some point the production is suddenly found to be below what current consumption requires, and then the turn in the opposite direction comes. The movement is usually determined by some special or accidental event, as by a very good harvest or by such a demand as has lately come to us from the United States; but, once started, it acquires a momentum wholly out of proportion to the apparent occasion. The truth is, the occasion is not the cause. The real causes lie deep in the whole circumstances of the depression itself, with its low prices tempting consumption on the one side, and the generally diminished or stationary production on the other. The production falling short of the minimum consumption, the moment this fact appears there must be a rise all round, and an immediate impetus in all directions to new production, which, of course, immediately increases the general consuming power. The impetus apparently gains energy and volume from the general desire of retailers and other intermediaries to increase their stocks, which had fallen below the average, while the mere feeling that things are going to be better helps to make them better.

“In some such way we should explain the usual causes of a trade revival, and while there can be no doubt in the present case of the extreme lowness of prices which had been brought about, the subject indeed of general lamentation a year ago, there seems equally little doubt of the general check to production we have referred to. As this last point is comparatively new, we may give a few illustrations. Thus in the iron trade we find that the production in the United Kingdom, which had been stationary for several years, must have tended to be much lower in the early part of 1879, since the total for that year, notwithstanding all the activity of the last three months of the year, is still below the average. The figures are:—

	Tons.
1871 .....	6,627,000
'72 .....	6,742,000
'73 .....	6,566,000
'74 .....	5,991,000
'75 .....	6,365,000
'76 .....	6,555,000
'77 .....	6,608,000
'78 .....	6,381,000
'79 (estimated) .....	6,200,000

"The total for 1879 is only estimated, but the estimate is that of Messrs. Fallows and Co., of Liverpool, who are usually not wide of the mark, the margin for error being also very small. The figures tell their own tale. Production, it is clear, must have sunk to a very low ebb at the beginning of last year, as for the whole year it is still more than 10 per cent. less than the average of 1872-73, and considerably less than the average of years like 1876-77, which were undoubtedly years of depression. With population steadily increasing all the while, it is easy to see that production must have fallen under actual wants. It is on a production thus arranged that an extra demand suddenly falls.

"In cotton we have very similar figures. The deliveries of raw cotton to all Europe, according to Messrs. Ellison's circular, amounted to 2,136,866,000 pounds in 1878-79; but the total as long ago as 1870-71 was 2,161,724,000 pounds, and this has been exceeded in several years in the interval. In Great Britain alone the deliveries were 1,110,212,000 pounds in 1878-79, which is absolutely a lower figure than in any of the previous eight seasons. With all the inflation that may have characterised the trade formerly, these figures still show a pause in production which is most serious, allowing for the increase of population in the interval.

"As regards wool, we have also similar figures. Messrs. Helmuth Schwartze and Co. give the following in one of their tables:—

	Total Wool left for Home Consumption.
Average of 1870-74 .....	339,000,000 lbs.
" '75 .....	351,000,000 "
" '76 .....	369,000,000 "
" '77 .....	373,000,000 "
" '78 .....	352,000,000 "
" '79 .....	319,000,000 "

"These figures seem even more striking to us than those of iron and cotton. The pause in production must have been serious at the last.

"Shipping, the produce trades, hides, and other trades supply other illustrations. It would be needless to multiply instances, while we do not say the experience is uniform; there being cases, like tea, where an increasing supply, until the very last year, seems hardly to have overtaken consumption, and a very slight reduction



in the supply has led to a great rise in price. Still it is remarkable to notice in so many of the trade circulars the references to a diminished production of the raw material as having come to a climax in 1879. The conclusion seems inevitable. The long period of low prices seems at last to have been as effectual in checking production on the one side, as in sustaining and stimulating demand on the other. Now the situation becomes more normal. The demand becomes the more active as it cannot be readily supplied, and the power of consumption increases with the increase of production itself.

“Such is the *rationale* of the trade revival as it appears to our mind; and from which we draw the conclusion that the bad harvest of last season ought not to have prevented it, as it has not, in fact, prevented it. Why should it have had any such effect? It weakens, no doubt, the purchasing power of the agricultural classes, but most other classes of the community have been enriched, and the extra demand is principally, after all, for the requirements of a minimum consumption. To some extent, also, the feeling of improvement is unconnected with any great improvement in reality; it is small changes in production and consumption, which produce all these effects; people are thankful for small mercies. In the foreign export trade, for instance, an increase of 5 per cent., which seems very probable in 1880, and which will delight all exporters, will still only raise the total value to the level of 1876, which shows a great decline as compared with 1873. But because the figures increase, everybody rejoices, although the country may be no better off, or not much better off, than in 1876. As economists view it, there was little cause to be dissatisfied with the latter year, but the point of view of business men and of economists is not precisely the same.

“*The Harvest Failure and Other Events.*

“There remain to be noticed the other important economic events of the year which we have already mentioned. Some of them, however, we propose to pass over without farther notice, as not relatively important to the immediate development of business, always the main topic in such a review as this, however important they may be in themselves. The change of unlimited banks into limited is an event of this sort. Eventually the transformation may have far-reaching consequences, changing the currents of investment, through banking shares becoming more attractive than they were, and stimulating the growth of banking and joint stock enterprise; but as regards the next few years, there will not be much difference. The development of business will be much what it would have been in any case. For a similar reason we pass over, also, the changes in Egypt and South America. It is an important matter within a certain sphere that something has been done which will improve the finances of Egypt and of the South American Republics, and the moral effect, by giving confidence to investors, may even be greater than the material effect; but relatively to the main influences which affect the movements of English trade, it can hardly be said that continued disorganisation in Egypt and Peru



would have mattered much. The great current would have swept on its course, and these eddies would have been hardly noticeable, just as their contributions to the main current will now be relatively inconsiderable. It is impossible, however, to class such an event as the harvest failure, as altogether secondary in its influence, and it appears to demand a few more words of notice.

“There can be no doubt as regards the corn crops that last season was one of the worst on record. After the harvest each succeeding estimate of the yield of the wheat crop, appeared to be worse than its predecessor, and these low estimates have been fully confirmed by the remarkable falling off in the quantities brought to market. The reduction of yield must have been at least 30 per cent. below the average, as estimated in an elaborate article in the *Times*, quoted in the *Statist* of 8th November last, and even the estimate of 50 per cent. below the average hardly seems too high. The barley harvest has also been most deficient, the result being peculiarly disastrous to the excise revenue. In minor crops, such as hops, there has been quite as serious failure. The season has also been far from favourable to green crops and live stock, the last agricultural returns showing only a slight increase in cattle, and a decrease in sheep and pigs, while the prices of meat have been most unfavourable to producers as compared with recent years. Coming after previous bad seasons, such an account is disastrous, and there is little cause for wonder at agricultural complaints or the appointment of a royal commission to inquire into the depression of agriculture. A little consideration would seem to show, however, that there are not a few qualifications to the opinion that agriculture is altogether ruined, and to the farther opinion as to this depression making a recovery in the home trade impossible. The figures of the live stock are still very large, and at least show little decline compared with what they were several years ago, although good agricultural authorities hold that the tendency of the conversion of arable into pasture land, is to reduce the stock, while making the business more profitable to those engaged. At the same time though the price of meat has fallen as compared with a few years back, there has been since last summer a great recovery in the prices of butter and cheese, so that all the events of the agricultural year have not been unfavourable to the agricultural interest. We may feel quite certain that while we hear complaints on all sides, farmers and landlords throughout the country are not suffering equally, and that the results of the year have been more tolerable to many than at first sight appears. Taking this into account, and dealing with the effects of the harvest on industry generally, we see at once why the bad result of the harvest should not affect the general trade revival. The agricultural industry, after all, is only about a tenth of the whole industry of the country; and although the net income from it, received as rent, wages, and profits, may usually be more than a tenth, we doubt if it very much exceeds that proportion. But say it is a sixth part, we should still only have a *net* income from agriculture of about 200 million pounds a year (taking the whole income of the country as nearly 1,200 million pounds). This 200 million pounds again may be assumed

to be equally divided between labourers, farmers, and landlords; but the labourers we know have hardly suffered; and assuming that the farmers all round have only made half their profits, and that landlords have had to give up 20 per cent. of their rents, we should arrive at a net reduction of about 50 million pounds in the usual return to agricultural industry. We should doubt if the net reduction is as great as this, while those concerned have gained like the rest of the community in the general cheapness; but even a reduction of 50 million pounds is not a large amount if the rest of the country is prosperous as it is beginning to be. It is not 5 per cent. of the aggregate income of the country. This is why the bad harvest has so little general effect. The agricultural industry, though large, is far from all-important. The other influences are stronger, and the country, as a whole, gains more by cheap food than it loses by a bad harvest.

*“The Rise in Silver.”*

“Another of the secondary events to which we must give a few additional words of notice is the rise in silver. The advance has been from about 49*d.* at the beginning of the year, to between 52*d.* and 53*d.*, the main cause undoubtedly being the improvement of the Indian trade, although the temporary suspension of the sales of German silver, the diminution of American production, and other causes have contributed. There seems little doubt also that a farther improvement will take place, the Indian trade keeping good, and private capital again seeking an outlet in India. We are a long way from the alarms which were very prevalent a year ago, and which made it very difficult to preach patience. The event is a most important one economically. A rising exchange helps to make Indian trade better, and the fact of recovery proves once more that the despairing and pessimist view as to the future price of silver is not at any rate to be realised at once—that there will be many ups-and-downs in the process, and ample time for the necessary adjustments to be made by the countries whose currencies are affected. The rejection in the early part of the year of Colonel Smith’s proposal to restrict the rupee coinage, as well as the failure of the officious proposals of the German and American Governments for a new bi-metallic conference, were happily confirmed, or rendered more easy, by the course of the silver market. The world has thus been spared the loss and misery of great currency changes, which could have had no other than a disturbing effect on trade and commerce generally.

“In connection with this silver question we think it deserving of note here that the directors of the Bank of England have been induced by the course of the discussion to reprint Lord Liverpool’s famous book on ‘The Coins of the Realm.’ The publication, it may be hoped, will settle the bi-metallic controversy for many a day to come.

“Another special event to notice is

*“The Drain of Gold to America.”*

“This has been very fully described in the *Statist*, from time to

time, and its bearings discussed. The broad fact is, that between 1st August and the end of the year, about 16 millions of gold were shipped from England and France to the United States; and that this was mainly due to the increasing currency requirements of the United States consequent on their good trade. The like requirements in former years had no such effect, because the American currency, until 1st January, 1879, was inconvertible paper. But since the resumption of specie payments on the latter date, the currency has become gold or based upon gold, and hence when trade expands and wages rise there, America, though a gold-producing country, is also able to take gold from her neighbours. The amount abstracted is a large one, and would probably not have been parted with so easily but for the great ease of money on this side; still there can be no doubt that in ordinary years America will absorb gold largely, especially as it appears that the paper currency is wholly inelastic, the greenbacks being strictly limited in quantity, and the conditions of the note circulation being such as to make the business unprofitable to the national banks. These points have been very fully explained in the *Statist*, the most recent article having appeared in the issue of 3rd January, to which reference may here be made.

“*Scientific Improvements.*”

“Another point to which attention may be drawn is the great economy effected in production during the years of depression. One of the beneficial results of such a period is the stimulus it gives to invention and labour-saving appliances, and such a stimulus has been given of late years. Great improvements, in particular, have been made in the processes for making steel, and in the use of steel as a substitute for iron, a source of large economies, for instance, in the permanent way expenses of railways. Great improvements have also been made in blast furnaces, the capacity of a single furnace being increased and the cost of production diminished. There is a similar economy in shipping, the tendency to increase being in large steamers, which cost little more in fuel and wages than smaller vessels, although their capacity is much greater. It would be out of place to go minutely into such questions here. It is important, however, to remember that the machine of production at the present moment is far more efficient than it was several years ago. The same labour will produce greater results, and a great increase of production, or saving in the hours of labour, will be possible.

“*The Prospect of 1880.*”

“We come, then, to the prospect for the current year, on which, however, we need say little. A review like what has been written, in conjunction, at least, with the numerous trade circulars quoted, tells its own tale. If we have brought out clearly the nature of the past year's events and of the present situation, the inferences should follow of themselves. All the facts and deductions point to a continuance of the improvement which has begun. The facts—that so many trades are better, that a stimulus is given to pro-



duction in all directions, that the harvest failure is really not of a kind to affect prejudicially the general movement, as it has not, in fact, prevented a start upwards, and that specially the improvement in India and America continues to affect us most favourably—all point to the one conclusion that the revival of trade is strong and genuine, and must be upheld by the causes which have set it in motion: for how long a period it is impossible to say beforehand, but probably for no inconsiderable time. The orders booked in almost every trade, it is believed, will carry us a great way through the present year. We may also believe, according to past experience, that such a movement once started will go on augmenting, will extend from one trade to another, and will be strengthened by incessant action and reaction. No one in such a matter should be over confident, knowing what a part is played by the unforeseen in human affairs; but the present is a time for hope, and a cheerful feeling is no unimportant factor in producing the good trade that is hoped for. The revival has given confidence, and enriched the leading capitalists and speculators—the people who direct production. Such a stimulus once given will last a long time.

“It is objected that the rise of prices is an adverse influence to prosperity; that the working classes have their purchasing power diminished by the rise in tea, sugar, and other articles of general consumption. But to this the answer is, that a rise of prices is the essential part of a trade revival, and in its earlier stages does not prevent the continuance of improvement. The fuller employment appears to compensate, and more than compensate, the consumer for the rise in prices by which production is stimulated. Afterwards, when prices rise still higher, the effect is different, consumption being checked, and production being rendered unprofitable, but we are yet a long way from such a period. Prices have risen, but not as yet to a very high level.

“Apprehensions are also expressed respecting the state of the money market, and the political complications in the east of Europe. But while fully believing that money is likely to be dearer, especially if trade goes on improving, we do not think the improvement in trade will itself be arrested. Experience has often shown that moderately high rates for money and good trade are quite compatible. We should doubt also whether the actual outbreak of war in the east of Europe, though it might check some speculation, would have very much influence in the commercial world. Even during the Franco-German war of 1870-71, our trade kept steadily improving, the chief economic effect of that war in its early stage being a brief disturbance of the money market. We see no reason why new continental wars, if their duration is equally brief, should have any greater effect. Of course, if they are protracted, the result would be different. Two or three years hence they might be found to assist in the descent from a period of prosperity and inflation to one of adversity and contraction. But for the present year there would be little perceptible evil, as regards our economic development, even in the outbreak of a great continental war. We come back to the conclusion, then, that the trade prospect of the year is a cheerful one, and that there is little to



obscure the prospect—that the hopes generally indulged in have a very solid foundation. Barring accidents, the year 1880 should be quite as prosperous as 1870, when trade started into life after another great depression.”

The Financial and Commercial History, 1879, with Appendix—to which the foregoing introduction belongs—is arranged under the following heads, viz.:—

*Trade in 1879—Foreign Trade in 1879—The Harvest of 1879.*

#### APPENDIX.

##### Extracts from Trade Circulars.

A.—IRON, COAL, CHEMICALS, &c.—

*Iron—Coal—Engineering—Chemicals.*

B.—RAW MATERIALS—

*Cotton—Wool—Flax—Silk.*

C.—PRODUCE—

*Mincing Lane Markets—Coffee—Sugar—Tea—Canned Goods and Preserved Provision Trade—Wine and Spirits—Oil and Seed Trade—Tallow—Wood and Timber—Hides, Tanning Materials, &c.—Drugs, &c.*

D.—MISCELLANEOUS—

*Gold and Silver—The German Bourses—Freights—Failures.*

#### Index to Tables.

BANK RETURNS—

*Bank of England—Bank of France—Bank of Germany—Bank of Austria—Bank of the Netherlands—Associated New York Banks—Savings Banks.*

CLEARING HOUSE RETURNS—

*London Bankers' Clearing Returns—Settlings on the 4th of the Month.*

Stock Exchange Settling Days—Foreign Market Rates of Discount—Exchanges and Bullion—Public Revenues—Stock Exchange Securities—Traffic Returns—Pauperism—Prices of Wholesale Commodities—Allotments of Indian Council Bills in 1879—Supply, Stock, and Prices of Wholesale Commodities—Statistics of Failures.

## II.—*The Fires of London during the Year 1879, and the Metropolitan Fire Brigade.*

THE following particulars are taken from Captain Shaw's Annual Report for 1879, to the Metropolitan Board of Works, in continuation of similar notices for previous years:—

“The number of calls for fires, or supposed fires, received during the year has been 1,949. Of these 116 were false alarms, 115 proved

to be only chimney alarms, and 1,718 were calls for fires, of which 159 resulted in serious damage, and 1,559 in slight damage.

"These figures refer only to the regular calls for fires, or supposed fires, involving the turning out of firemen, fire engines, fire escapes, horses, and coachmen; they do not include trifling damages by fires which were not sufficiently important to require the attendance of firemen; neither do they include the ordinary calls for chimneys on fire, which are separately accounted for further on.

"The fires of 1879, compared with those of 1878, show an increase of 59; and compared with the average of the last ten years, there is an increase of 85.

"The proportion of serious to slight losses—159 to 1,559—is most favourable, and notwithstanding several exceptional periods, as, for instance, the year 1872, I think I am justified in saying that the value of property destroyed by fire in London has been less in 1879, than in any other year since the formation of the brigade.

"The following table gives it both in actual numbers and percentages:—

Year.	Number of Fires.			Percentage.		
	Serious.	Slight.	Total.	Serious.	Slight.	Total.
1866.....	326	1,012	1,338	25	75	100
'67.....	245	1,152	1,397	18	82	100
'68.....	235	1,433	1,668	14	86	100
'69.....	199	1,373	1,572	13	87	100
'70.....	276	1,670	1,946	14	86	100
'71.....	207	1,635	1,842	11	89	100
'72.....	120	1,374	1,494	8	92	100
'73.....	166	1,382	1,548	11	89	100
'74.....	154	1,419	1,573	10	90	100
'75.....	163	1,366	1,529	11	89	100
'76.....	166	1,466	1,632	11	89	100
'77.....	159	1,374	1,533	10	90	100
'78.....	170	1,489	1,659	10	90	100
'79.....	159	1,559	1,718	9	91	100

"The number of fires in the metropolis in which life has been seriously endangered during the year 1879 has been 96; and the number of these in which life has been lost has been 27.

"The number of persons seriously endangered by fire has been 164, of whom 132 were saved, and 32 lost their lives. Of the 32 lost, 15 were taken out alive, but died afterwards in hospitals or elsewhere, and 17 were suffocated or burned to death.

"The number of calls for chimneys has been 4,169. Of these 1,375 proved to be false alarms, and 2,794 were for chimneys on fire. In these cases there was no attendance of engines, but only of firemen with handpumps.

"The number of journeys made by the fire engines of the 52 land stations has been 22,184, and the total distance run has been 50,491 miles.

"The quantity of water used for extinguishing fires in the metropolis during the year has been 16,122,128 gallons—in round

numbers a little more than 16 million gallons, or about 72,000 tons. Of this quantity, about 32,000 tons, or a little more than two-fifths of the whole, were taken from the river, canals, and docks, and the remainder from the street pipes.

“During the year there have been 9 cases of short supply of water, 33 of late attendance of turncocks, and 18 of no attendance, making altogether 60 cases in which the water arrangements were unsatisfactory.

“The strength of the brigade at present is as follows:—

52	land fire engine station
1	movable land station.
113	fire escape stations.
4	floating „
3	large land steam fire engines.
34	small „
12	seven-inch manual fire engines.
64	six-inch „
37	under six-inch „
130	fire escapes and long scaling ladders.
3	floating steam fire engines.
1	steam tug.
17	hose carts.
15	vans.
3	barges.
57	telegraph lines.
106	miles of telegraph lines.
452	firemen, including chief officer, superintendents, and all ranks.

“The number of firemen employed on the several watches kept up throughout the metropolis is at present 104 by day and 188 by night, making a total of 292 in every twenty-four hours; the remaining men are available for general work at fires.

“Our list of wounds and other injuries for 1879 is, unfortunately, very large, but this will always be the case as long as the men work with zeal and energy.

“There have been during the year 297 cases of ordinary illness, and 69 injuries, making a total of 366 cases, of which many were very serious.”

From the tables appended to the report the following particulars are obtained:—

(a) The fires classified according to occupations, arranged in the order of frequency of occurrence; to which are added, for the purpose of comparison, the corresponding figures for the three previous years:—

Number.	Occupations.	Number of Fires.			
		1879.	1878.	1877.	1876.
1	Private houses .....	399	358	321	327
2	Lodgings .....	172	203	195	193
3	Victuallers .....	58	60	56	58
4	Coffee houses .....	32	25	21	17
5	Cabinet makers .....	30	27	30	30
6	Drapers .....	30	29	25	22
7	Oil and colourmen .....	29	28	25	31
8	Tobacconists .....	27	22	15	8
9	Greengrocers and fruiterers .....	25	15	13	17
10	Tailors, clothiers, and outfitters .....	25	30	23	30
11	Boot and shoe makers .....	24	21	17	22
12	Builders .....	24	14	23	21
13	Stables .....	23	19	21	25
14	Under repairs and building .....	23	36	23	20
15	Grocers .....	20	28	29	25
16	Booksellers, binders and stationers .....	18	15	11	22
17	Carpenters, &c. (not cabinet makers) .....	17	7	6	15
18	Offices .....	17	9	16	8
19	Bakers .....	15	11	20	15
20	Railways .....	15	7	6	17
21	Butchers .....	14	14	10	9
22	Chandlers .....	13	10	10	14
23	Marine store dealers .....	13	4	7	3
24	Upholsterers .....	13	11	6	6
25	Coal and coke merchants .....	12	5	9	9
26	Confectioners .....	12	15	7	12
27	Engineers and machinists .....	12	9	4	13
28	Furniture makers and dealers .....	12	11	5	12
29	Chemists (including all chemical laboratories) .....	11	7	5	6
30	Farming stock .....	11	9	22	41
31	Hotels and club houses .....	11	14	13	10
32	Looking glass and picture frame makers .....	11	7	5	7
33	Printers .....	11	17	16	13
34	Beershop keepers .....	10	13	8	11
35	Furriers and skinners .....	10	10	5	6
36	Refreshment rooms .....	10	15	14	11
37	Saw mills .....	10	4	6	3
38	Schools .....	10	4	2	14
39	Unoccupied .....	10	10	14	10
		1,239	—	—	—
Remainder, varying from 9 to 1 .....		479	—	—	—
		1,718	—	—	—

(b) A list of the fires classified under the causes to which they have been assigned, and arranged in the order of frequency of occurrence:—



Causes.	Number of Fires.
1. Unknown .....	402
2. Lamps (not gas) and lights (thrown down) .....	256
3. Defective, or improperly set—flues, ovens, furnaces, boilers, stoves, &c. ....	183
4. Sparks from fires, &c. ....	172
5. Gas (in various ways) .....	146
6. Candles .....	108
7. Overheating of—flues, ovens, furnaces, boilers, stoves, &c. ....	90
8. Children playing with fire, matches, &c. ....	64
9. Hot ashes .....	48
10. Airing and drying stoves .....	40
11. Foul flues .....	39
12. Boiling over, or upsetting of fat, pitch, &c. ....	30
13. Smoking tobacco .....	24
14. Spirits, or vapour of spirits, in contact with flame .....	24
15. Spontaneous ignition.....	20
16. Lime slaking by rain and otherwise .....	14
17. Lucifer matches.....	14
18. Doubtful .....	11
19. Burning rubbish .....	5
20. Incendiarism .....	5
Miscellaneous, varying from 3 to 1.....	23
Total .....	<hr/> 1,718 <hr/>

(c) The usual summaries attached to the report for 1879 further show: that of the months, the greatest number of fires occurred in December (211), and the smallest number in July (113); that of the days of the week, the largest number of fires (268) occurred on Saturday, and the smallest number (212) on Monday; and that of the hours of the day, the greatest number of fires occurred between the 7th and 12th hours P.M., and those most exempt from such disaster were the 5th to the 11th hours A.M.

With reference to the daily summary, the following table, which gives the totals of the fires for each day of the week for the last ten years, shows on the *average* that the largest number of fires occur on Saturday, and the smallest number on Monday. The annual average number of fires for the last ten years is 1,647.

Years.	Sunday.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.	Total.
1870....	290	252	258	266	300	258	322	1,946
'71....	286	202	247	302	271	258	276	1,842
'72....	199	206	213	207	220	220	229	1,494
'73....	202	209	237	199	230	243	228	1,548
'74....	222	228	228	195	240	231	229	1,573
'75....	200	203	231	227	236	209	223	1,529
'76....	260	218	226	235	242	221	230	1,632
'77....	192	218	212	224	243	216	228	1,533
'78....	260	191	271	234	214	236	253	1,659
'79....	235	212	231	257	264	251	268	1,718
Total...	2,346	2,139	2,354	2,346	2,460	2,343	2,486	16,474

The condition of the brigade is reported to be in all respects satisfactory, and Captain Shaw in his report recommends two firemen for special merit in saving life from fire, who collectively saved six lives during the year.

### III.—*English Literature in 1879.*

THE following particulars are taken from the *Publishers' Circular* of 31st December, 1879, in continuation of a series of similar extracts for previous years:—

“Comparing the yield with that of 1878, we find that the total of books issued during the year is 5,834 against 5,314 in 1878. Of these 4,294 are new books, 3,730 being the number of new books chronicled for 1878; of new editions there are 1,540 as against 1,584 new editions in 1878. The various classes show comparatively as follows, new books and new editions together:—Divinity is 40 per cent. in advance of last year in point of numbers; education has the same increase; fiction and juvenile works are about on a par with those of 1878; law, jurisprudence, &c., have afforded about 20 per cent. more books in 1879 than in 1878; political and practical matters, art and illustrated books, about half as many again as the preceding year; geographical research, travels, history, &c., show a large increase; as against practical treatises, poetry, and the drama are not so well represented, being fewer by some sixty or seventy books; of the rest we may say, that about the average increase is kept up.

“It is worthy of remark, that the relative activity of the year just ended, is greater than the gross numbers lead one to think. The *proportion* of new books as compared with new editions is in 1879 much greater than in 1878. In 1879 the new books are not far from three times the number of the new editions; in 1878 the new books were about two and a half times as many as the new editions.

## Analytical Table of Books Published in 1879.

Subjects.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total of Books on each Subject for the Year.
Theology, sermons, biblical, &c. .... }	*73 †35	36 27	51 27	64 20	91 43	51 20	47 21	58 12	28 12	97 23	103 45	76 26	775 311 — 1,086
Educational, classi- cal, and philo- logical .....	*94 †32	59 27	49 26	51 20	69 14	37 11	26 15	34 17	34 6	53 17	64 20	43 10	613 215 — 828
Juvenile works and tales .....	*13 † 3	7 4	5 4	10 9	12 8	8 4	8 —	9 4	4 2	32 8	25 5	20 10	153 61 — 214
Novels, tales, and other fiction .....	*51 †28	36 17	44 33	44 22	49 44	40 33	42 34	28 39	23 20	92 58	72 41	86 37	607 406 — 1,013
Law, jurisprudence, &c. .... }	*15 † 7	11 6	7 6	8 4	15 6	7 4	12 5	4 1	4 5	6 4	11 5	2 2	102 55 — 157
Political and social economy, trade and commerce .... }	* 4 † 3	5 1	5 —	6 —	13 4	8 1	13 —	11 5	3 1	8 2	12 3	11 2	99 22 — 121
Arts, science, and illustrated works }	*34 † 4	17 2	7 4	17 11	30 8	30 8	19 5	15 5	5 6	39 7	31 14	24 11	268 85 — 353
Voyages, travels, and geographical research..... }	*19 †10	13 3	19 4	7 1	35 10	25 10	15 6	11 9	7 2	24 6	27 3	26 6	228 70 — 298
History, biography, &c..... }	*32 † 6	21 6	21 9	25 6	36 6	17 3	28 8	17 6	12 4	38 14	35 11	37 5	319 84 — 403
Poetry and the drama .....	*16 † 4	9 5	13 —	10 3	13 4	17 5	15 2	5 3	3 —	16 4	12 5	21 6	150 41 — 191
Year books and serials in volumes }	*57 †	16 —	14 —	12 —	20 —	20 —	24 —	7 —	6 —	22 —	30 —	58 —	286 — — 286
Medicine, surgery, &c..... }	* 9 † 3	5 —	16 8	8 3	15 15	13 4	15 2	9 3	3 —	23 5	14 5	6 5	136 53 — 189
Belles lettres, essays, monographs, &c. }	*15 † 3	9 1	15 4	12 6	17 1	11 —	9 1	4 4	2 1	17 14	12 3	13 5	136 43 — 179
Miscellaneous, in- cluding pamphlets, not sermons..... }	*63 †10	35 6	29 10	26 11	40 6	54 5	22 6	16 4	9 4	55 13	33 12	40 7	422 94 — 516
	643	384	430	416	624	446	400	340	206	697	653	595	5,834

\* New books.

† New editions.

The analytical table is divided into fourteen classes; also new books and new editions:—

Divisions.	1878.		1879.	
	New Books.	New Editions.	New Books.	New Editions.
Theology, sermons, biblical, &c.....	531	208	775	311
Educational, classical, and philological...	424	162	613	215
Juvenile works and tales.....	319	129	153	61
Novels, tales, and other fiction .....	447	432	607	406
Law, jurisprudence, &c. ....	93	36	102	55
Political and social economy, trade and } commerce .....	133	48	99	22
Arts, sciences, and illustrated works.....	119	28	268	85
Voyages, travels, geographical research ..	147	68	228	70
History, biography, &c. ....	312	118	319	84
Poetry and the drama.....	200	156	150	41
Year books and serials in volumes .....	225	15	286	—
Medicine, surgery, &c. ....	176	57	136	53
Belles lettres, essays, monographs, &c. ....	409	122	136	43
Miscellaneous, including pamphlets, } not sermons .....	195	5	422	94
	3,730	1,584	4,294	1,540
	5,314		5,834	

#### IV.—*German Literature of 1878 and 1879.*

THE following is taken from the *Publishers' Circular* of 2nd February, 1880 :—

“Systematic view of the literary productions of the German bookselling trade in 1878 and 1879, extracted from the *Börsenblatt*:—

	1878.	1879.
1. Collections or sets of works—literary history, } bibliography .....	341	278
2. Divinity .....	1,246	1,304
3. Law, politics, statistics, trade .....	1,319	1,683
4. Therapeutics, veterinary .....	789	732
5. Natural history, chemistry, pharmacy .....	793	841
6. Philosophy .....	164	139
7a. Education, German school-books, physical } education .....	1,775	1,741
7b. Juvenile books .....	443	434
8. The classics and oriental languages, anti- } quities, mythology .....	500	481
9. Modern languages, old German .....	448	485
10. History, biography, memoirs, letters .....	699	680
11. Geography and travel .....	311	306
12. Mathematics and astronomy .....	151	158
13. War, hippology.....	350	337



	1878.	1879.
14. Mercantile science, technology .....	577	577
15. Machinery, railways, mining, nautical .....	382	384
16. Hunting and forestry .....	118	103
17. Domestic economy, agriculture, gardening ....	386	421
18. Belles lettres, novels, poems, drama, &c. ....	1,181	1,170
19. Fine arts—painting, music, &c.; shorthand....	571	584
20. Popular literature, almanacks.....	715	642
21. Freemasonry .....	20	21
22. Miscellaneous .....	340	378
23. Maps .....	293	300
Total .....	13,912	14,179

#### V.—*Emigration and Immigration in the Year 1879.*

THE following is a copy of Mr. Giffen's Report to the Secretary of the Board of Trade, relating to Emigration from, and Immigration into, the United Kingdom in the year 1879:—

“ Sir,—In submitting a year ago the tables of emigration and immigration for the year 1878, I had to call attention to certain changes in the figures, as compared with the years immediately previous; the number of emigrants having increased, while immigration continued to decline, so that the balance of emigration, *i.e.*, the excess of emigrants over immigrants, had increased in still greater proportion than the increase of emigration itself. The figures of increase and decrease were, however, so small, as only to raise a presumption that emigration had once more begun to augment after declining for several years; it remained to be seen whether the current would continue to flow, and would flow more strongly, in the direction in which it had set. The tables of 1879, which I have now to submit, appear to answer the question in the affirmative. There is a farther increase of emigration in 1879 over 1878, that increase being also more considerable than the similar increase in 1878 over 1877; there is also a farther decline in immigration, and consequently a farther considerable increase in the excess of emigrants. It is also noticeable, as we shall see, that some of the concomitants of the increase of emigration in 1878 are again observable as regards the much larger increase of 1879. It is again to the United States and British North America that the additional emigrants have departed; the increase in the emigration to Australia, which had not fallen off as that to the United States and North America had done, being inconsiderable.

“ The exact figures as to the increase of emigration, decline of immigration, and increase of the excess of emigrants, are as follows:—

*(a) Increase of Emigration.*

	Total, including Foreigners.	Emigrants of British and Irish Origin only.
Number of emigrants in 1879.....	217,163	164,274
"                      '78.....	147,663	112,902
Increase .....	69,500	51,372

"Thus the increase of emigrants of all nationalities is 69,500 as compared with an increase in 1878 over 1877 of 27,692 only; and the increase of emigrants of British and Irish origin only, the main fact to deal with as far as this country is concerned, is 51,372 as compared with an increase in 1878 over 1877 of 17,707 only. These increases, it will also be remembered, compare with a decline which had been going on for several years down to 1877.

*(b) Decrease of Immigration.*

	Total, including Foreigners.	Immigrants of British and Irish Origin only.
Number of immigrants in 1878 .....	77,951	54,944
"                      '79 .....	53,973	37,936
Decrease in 1879 .....	23,978	17,008

"Thus the number of total immigrants has fallen from 77,951 to 53,973, and the number of immigrants of British and Irish origin only has fallen from 54,944 to 37,936. The decrease in 1879 as compared with 1878, is also greater than in 1878 as compared with 1877.

"It clearly follows from these figures, that the excess of emigrants in 1879 must have been much greater than in the two previous years, as will be more clearly perceived from the following additional summary:—

*(c) Increase of Excess of Emigrants.*

	Total Emigration and Immigration.	Emigration and Immigration of Persons of British and Irish Origin only.
Number of emigrants in 1879 .....	217,163	164,274
"      immigrants      " .....	53,973	37,936
Excess of emigrants .....	163,190	126,338
Corresponding excess in 1878 .....	69,712	57,958
"                      '77 .....	38,123	31,305
"                      '76 .....	44,665	38,065

“Thus the excess of emigrants—the loss of population to the United Kingdom through more people going to places out of Europe than come back from those places—is very much greater in 1879 than in any of the three previous years. As regards persons of British and Irish origin only, the excess of emigrants in 1879, amounting to 126,338, is more than double the excess in 1878, which amounted to 57,958; more than four times the excess in 1877, when the figure was 31,305 only; and between three and four times the excess in 1876. From being only nominal in the previous two or three years, the emigration in 1879 has, in fact, risen to an appreciable total.

“Into the causes of this increase of emigration this would hardly be the place to enter, as there are no data obtained in the collection of the statistics themselves which throw light on the matter. I may be permitted, however, to suggest a reference to the statement in my report for 1875, in which I drew attention to the decline of emigration, which always appeared to occur in years of depression in this country and the United States.\* The coincidence of the present increase of emigration with a revival of trade which has been making progress in the United States for the last two years, and in this country during the latter part of 1879, appears so far to confirm the view that a great falling off in emigration is among the signs of a depressed period in this country.

“It remains to be seen, however, whether the amount and rate of emigration will, with the revival of trade, return to their former level, or whether the tendency is not to a gradual but still appreciable decline from period to period. The degree of falling off in 1877 and 1878 was certainly very remarkable, but it is difficult to compare it properly with earlier years on account of the imperfect record, or rather absence of record, of immigration which previously existed. In the absence of a better test, then, the actual decline of immigration at a time when emigration increases appears important. It would seem to be a natural inference from this circumstance that there is always a certain amount of “tentative” emigration, and that of those who go away a larger number stay in the countries to which they depart in good times than in times when trade is depressed. Thus the diminution of immigration in a year like 1879 is a sign of the operation of causes which are likely to promote emigration for some time afterwards. By-and-bye, as emigration increases, immigration will increase too, till at last, when the tide is again turning, immigration will be large in the face of declining emigration, and there will be a small excess of emigrants; but for the present, judging by past statistics, we seem to be at the comparatively early stage of a new tide of emigration. In confirmation of this opinion, it seems sufficient to glance at No. 15A of the tables annexed to the Report. It will there be seen that between 1870 and 1873, emigration and immigration both increased, but there was very little increase in the excess of emigrants; that in 1874 there was a large decrease of emigration coupled with a large increase of immigration, so that

\* This report was a departmental paper only, and was not presented to parliament.

the excess of emigrants showed a large diminution, the exact contrary of what is now occurring; and that from 1874 to 1877 there was a steady decline of both emigration and immigration, but more in the former than the latter, so that the excess of emigrants declined. It seems reasonable to infer that the present movement is likely to follow the same course, and will be followed by an increase of both emigration and immigration, accompanying a considerable net emigration, and then by a decrease of both, accompanied by a very small net emigration. Of course I do not put forward any such opinion authoritatively, the sole object being to call attention to what seems the bearing of the figures when compared with those of former periods.

"It has already been stated incidentally that the principal part of the increase of emigration, as was the case last year, is to the United States and British North America, in which, as I had often occasion to point out in former reports, the chief falling off in previous years occurred. The point seems deserving of fuller statement. The inference from the former falling off was that the natural stream of emigration was to North America, and the emigration to Australia was only steadier because it was not so completely self-supporting; and this inference is apparently supported by the direction of the stream of emigration when trade becomes good. Almost all the increase goes to North America and very little to Australia. Thus, taking all emigrants, including foreigners, we find that out of a total increase of 70,000 in 1879, compared with 1878, no less than 53,000 is an increase of emigration to the United States and 9,000 to British North America, leaving only 8,000 as the increase to all other places, including Australia. The increase to America, moreover, is about 65 per cent., whereas to Australia it is very little over 13 per cent. Dealing with the emigration of persons of British and Irish origin only, we find that while the total increase as above stated is 51,372 persons, the increase to the United States only is 37,112 persons, and to British North America, 7,300 persons, leaving only 7,000 as the increase to all other places, including Australia. Here, again, the increase to North America is 69 per cent., and to Australia only about 12 per cent. And we get a still more striking comparison, when we look at the figures of the excess of emigrants for a series of years, as exhibited in the following table:—

*Destinations of Excess of Emigrants over Immigrants among Persons of British and Irish Origin only in the Undermentioned Years.*

Country of Emigration and Immigration.	Excess of Emigrants in			
	1876.	1877.	1878.	1879.
United States .....	(-) 143*	603	20,654	71,758
British North America .....	2,706	2,033	4,448	14,455
Australasia .....	29,617	25,501	32,272	35,992
All other parts .....	5,885	3,168	584	4,133
	38,065	31,305	57,958	126,338

\* Excess of immigrants.



"Thus, of the whole addition of 69,000 to the net emigration last year, 51,000 is to the United States, 10,000 to British North America, and only the remainder, or 8,000, to all other places. The increase in the case of the United States, again, is from 20,654 to 71,758, or more than 240 per cent.; and, if the years 1876 and 1877 are compared, is practically an increase from *zero* to this large figure. The increase in the case of North America is from 4,448 to 14,455, or about 230 per cent.; and in the years 1876 and 1877 is from about 2,000 to 14,000, or a multiplication of the minimum number by seven times. But the increase in the case of Australasia is from 32,272 in 1878, and 25,501 in 1877, to 35,992 in 1879, or at the rate of rather more than 10 per cent. in the former case, and rather less than 30 per cent. in the latter. In other words, the natural stream of emigration to North America, which was almost wholly suspended in 1876 and 1877, and which began to flow a little in 1878, has once more swollen to dimensions greatly in excess of the comparatively steady emigration to Australasia.

"Another sign of what appears to me the increase of natural emigration in 1879, is the circumstance of its corresponding very closely to the increase of steerage passengers outwards, the number of cabin passengers remaining stationary. We get the following comparison:—

*Numbers of Cabin and Steerage Passengers Leaving the United Kingdom for Places out of Europe, in each of the Years 1876-79.*

Years.	Cabin Passengers.	Steerage Passengers.	Total.
1876 .....	41,900	96,322	138,222
'77 .....	37,147	82,824	119,971
'78 .....	43,168	104,495	147,663
'79 .....	43,928	173,235	217,163

"There can be no doubt that, as a class, emigrants go as steerage and not as cabin passengers, and the increase of steerage passengers is practically an increase of emigrants.

"Another subject which has been specially dealt with in former reports is the composition of the emigration from the United Kingdom. It has been shown that the proportion of Irish persons in the total emigration from the United Kingdom, which used to be 50 and 60 per cent., and as late as the five years ending 1875 amounted to 34 per cent., had, since the latter date, fallen to 24 per cent. Now it would seem that, while the numbers are again increasing, still it is only *pari passu* with the increase of the numbers of English and Scotch emigrating, the proportion being still 25 per cent. only, as compared with 26 per cent. in 1878 and 24 per cent. in 1876 and 1877.

"The following table showing this is in continuation of a similar table in former reports:—

*Statement of the Number and Proportion of Persons of English, Scotch, and Irish Birth respectively, in the Total Emigration of Persons of British Origin, at Different Periods.*

Period.	English.		Scotch.		Irish.		Total.
	Number.	Per-centage of Total.	Number.	Per-centage of Total.	Number.	Per-centage of Total.	
Three years, 1853-55	211,013	30	62,514	9	421,672	61	695,199
Five years.... '56-60	243,409	39	59,016	10	315,059	51	617,484
" .... '61-65	236,838	33	62,461	9	418,497	58	717,796
" .... '66-70	368,327	43	85,621	10	400,085	47	854,033
" .... '71-75	545,015	56	95,055	10	329,467	34	969,537
Year 1876 .....	73,396	67	10,097	9	25,976	24	109,469
" '77 .....	63,711	67	8,653	9	22,831	24	95,195
" '78 .....	72,323	64	11,087	10	29,492	26	112,902
" '79 .....	104,275	64	18,703	11	41,296	25	164,274

"How small the total of Irish emigration still is, as compared with that of former years, is shown by the following table, which is likewise continued from former reports:—

Annual average, 1861-70 .....	81,858 persons
Year 1871.....	71,067 "
" '72 .....	72,763 "
" '73 .....	83,692 "
" '74 .....	60,496 "
" '75 .....	41,449 "
" '76 .....	25,976 "
" '77 .....	22,831 "
" '78 .....	29,492 "
" '79 .....	41,296 "

"In proportion to the population, however, the Irish emigration is still larger than that of Great Britain.

"The usual tables have been added, showing, in detail, the number, sex, and destination of the emigrants, distinguishing between adults and children, and between married and single among the adults, and showing also the occupations of the adults. With regard to these, the only point to which I would call attention, on comparing the tables with those of former years, is the great increase of certain classes of emigrants of British and Irish origin during the past year. The 'general labourers' number 28,504, compared with 13,701 in 1878, and 9,816 in 1877; the 'farmers' number 5,382, compared with 3,296 in 1878, and 2,477 in 1877; the 'miners and quarrymen' number 3,933, compared with 1,176 in 1878, and 1,428 in 1877; the 'males, occupation not stated,' number 13,353, compared with 10,995 in 1878, and 9,767 in 1877; the 'females, occupation not stated,' number 37,594, compared with 27,363 in 1878, and 23,531 in 1877. In such classes as 'gentlemen, professional men, merchants, &c.,' there is hardly

any change in 1879, compared with the two previous years, a fact which seems to lead to the same inference as the increase of steerage passengers during the last two or three years, while the number of cabin passengers has remained stationary.

"Tables are also given, as usual, containing a statement of the number of emigrants embarking from different ports of the United Kingdom, particulars of detention money recovered by emigration officers, and statement of remittances by settlers in the United States or British North America to their friends in the United Kingdom, besides comparative tables. I may again repeat, however, the observation in my last report, that the data as to the remittances by settlers to friends at home are necessarily most incomplete, and the figures are only given *quantum valeant*, and to continue those formerly published.

(Signed) "R. GIFFEN."

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#### VI.—Rates of Life Insurance Premiums.

THE following is taken from the *Statist* of the 17th of January, 1880, being No. 7 of a series of special articles on "Insurance Companies' Accounts," that have appeared in that paper:—

"In the course of the various special articles which we have published, and which we have in preparation, on the accounts of the different insurance companies, it has been necessary to refer in each case to the rates of premium charged. The ideal company is of course one which charges the lowest possible rate of premium consistent with safety, at the same time using up the smallest possible portion of that premium in expenses and proprietors' profits, and investing the funds to the best advantage in suitable securities. Hence the primary necessity for referring to the rates of premium, while there are other secondary reasons, such as the comparison of the proportion of expenses actually incurred, and the proportion allowed for in the loading, among companies charging the same, or nearly the same rates of premium, and the comparison of the amounts returned as bonuses, the companies which charge the highest premiums being of course bound to give the largest bonuses, if their policy holders are to be treated equally. But it is not easy to compare the rates of different companies. They have mostly different scales, according as the policy holders are entitled to participate in profits or not, and according to other conditions of insurance. In comparing particular scales, it is found, as it ought to be, that there are different premiums for each age, from 20 or even a lower age to 50 and upwards, and that the companies are not uniformly dearer or cheaper at all ages, but that some which are cheaper than others at ages under 30 are dearer at the ages above that, and *vice versâ*. How, then, find a common term of comparison? Hitherto, following a usual practice, we have compared what are called the 'with profit' premiums to insure 100*l*.

at death at three ages, viz.: 21, 31, and 41; but this is not wholly satisfactory. It is right, we believe, to select the 'with profits' premiums for comparison; most of the business of insurance companies being insurances for the whole term of life, with a right to participate in profits—in mutual companies the whole of the profits, and in proprietary companies three-fourths or four-fifths, and sometimes nine-tenths of the whole. But the method assigns no relative value to each of the three ages, and a more extended comparison would clearly be useful. We propose to give such a comparison in the present article. For this purpose we have compared the 'with profit' premiums for the whole of life of the different companies at the ages between 26 and 41 inclusive, these being obviously the ages at which the bulk of insurance business must be done; and to obtain a single figure for comparison, we have added together the premiums at each age, sixteen in all, and divided them by this number of sixteen, so as to give the average or mean of the whole. To be scientifically correct, we should have compared all ages and allowed each to enter into the average only in the proportion of the amount of business done at that age to the whole business, but this would be obviously impossible, there being no general statistics embracing all companies of the ages at which insurances are effected; while even if it were possible, there would be the further difficulty that the proportion of business at each age done by a particular company would vary from the general average. It seems to us, therefore, practically useful, though not scientifically perfect, to compare the premiums between 26 and 41 in the way we have done, that is, assigning an equal value to each age. Our readers will, of course, understand that the companies might be ranged somewhat differently than they are on our list if the comparison embraced all ages, and if each age affected the comparison only in proportion to the actual amount of business done. All we have proposed to do is to make a list which may be useful in the absence of anything better.\*

"The general results of the table are obvious enough. Out of ninety-two companies which we have been able to include in our comparison, having an aggregate premium income of 12,163,751*l.*,† it appears that there are fourteen companies, with an aggregate premium income of 2,424,812*l.*, where the mean annual premium at the ages 26 to 41, to insure 100*l.* at death with profits, exceeds 2*l.* 16*s.* 3*d.*; that there are twenty-six companies, with an aggregate premium

\* As our table shows, our authority for the premiums charged is the statistical returns to the Board of Trade, under the Life Insurance Companies Act of 1870, sixth schedule. In all cases we have taken the last returns in the blue books, and it is possible, of course, that there are one or two instances where the companies have since altered the scale of premiums. In one instance, the Equitable, where there are no recent statistical returns in the blue book, we have taken the figures from the published tables of the company.

† As the number of companies and amount of premium income dealt with are different from those in our article of 9th August last, showing the proportion of expenses to premium income, it may be useful to explain that it has not been possible in all cases to compare the companies in our former list, some of them taking weekly payments, and there being other difficulties.



income of 4,563,109*l.*, where the mean annual premium exceeds 2*l.* 15*s.*, and does not exceed 2*l.* 16*s.* 3*d.*; that there are thirty-three companies, with an aggregate premium income of 3,114,910*l.*, where the mean annual premium exceeds 2*l.* 13*s.* 9*d.*, and does not exceed 2*l.* 15*s.*; that there are eleven companies, with an aggregate premium income of 1,036,124*l.*, where the mean annual premium exceeds 2*l.* 12*s.* 6*d.*, and does not exceed 2*l.* 13*s.* 9*d.*; and that there are eight companies, with an aggregate premium income of 1,024,796*l.*, where the mean annual premium does not exceed 2*l.* 12*s.* 6*d.* The bulk of the companies, numbering seventy, are in the second, third, and fourth lists, their aggregate premium income being 8,714,000*l.*, or 72 per cent. of the total; and this means that most of the companies have average premiums at the ages referred to not differing in the most extreme case by more than about 6½ per cent., that being the difference between a mean annual premium of 2*l.* 16*s.* 3*d.* and another of 2*l.* 12*s.* 6*d.* A considerable addition might be made to this from the lower part of the first table, where the mean annual premium exceeds 2*l.* 16*s.* 3*d.* by a very small amount; but the facts as they stand are very striking. Whatever differences there may be at particular ages, still between 26 and 41 on the average, there is great likeness in the premiums which our insurance companies charge. The difference between 2*l.* 16*s.* 3*d.* and 2*l.* 12*s.* 6*d.*, considering the objects for which insurances are effected, and the proportion of the payment, as a rule, to the whole income of the insurers, is practically inappreciable. It amounts to a difference of 1*l.* 17*s.* 6*d.* on the sum required to insure 1,000*l.*, the difference, namely, between 28*l.* 2*s.* 6*d.*, the sum required at a rate of 2*l.* 16*s.* 3*d.*, and of 26*l.* 5*s.*, the sum required at a rate of 2*l.* 12*s.* 6*d.* To a man whose income would suggest the expediency of an insurance for 1,000*l.*, the difference between 28*l.* 2*s.* 6*d.* and 26*l.* 5*s.* would hardly be appreciable. On an income of 500*l.* it would not be more than 0·4 per cent. Security being the main element sought in insurance, the least shade of doubt about the cheaper company would justify and induce an insurer to seek the dearer one, when the difference between cheaper and dearer is really so little. The limits of difference as regards many particular companies are of course still less.

“Nor can it be said that at certain ages the differences are greater. Looking down the different columns it will be seen that at the extreme ages, where the differences are apt to be greatest, these differences are still very limited. The highest at the age 26, in Tables II, III, and IV, is 2*l.* 6*s.* 8*d.*, and the lowest 2*l.* 2*s.* 4*d.*, which is at most a difference of 10 per cent.; while the highest at the age of 41 is 3*l.* 9*s.* 9*d.*, and the lowest 3*l.* 4*s.* 9*d.*, or a difference of 7 per cent. only. At the intermediate age, which appears to be 34, the rates correspond with singular closeness to the mean of the sixteen ages, the highest being 2*l.* 16*s.* 1*d.*, and the lowest 2*l.* 12*s.* 4*d.* An examination of the tables will show that the rates do approximate about age 34, those having the same mean which start with a relatively high rate at 26 having a relatively low rate at 41, and *vice versâ*, and the ages from 30 to 34 being the point where the two different scales approximate. Why this should

be so—why the companies should not be uniformly higher or lower all through, as ought to be the case if they have the same scientific basis, is an actuarial question on which we need not enter. But it is obviously of practical interest to an insurer to know that while the mean annual premiums of the bulk of insurance companies at the insuring ages vary little, the extremes of variation at particular ages within the same limits cannot be very much greater, and are insignificant in a question of security, which is his main object in insuring. This conclusion is absolutely demonstrated by the tables which we have arranged.

“There remain two tables—Table I and Table V—about which a remark or two may be added. A portion of the former, and perhaps the whole of it, with the exception of the single company that heads the list, which occupies a peculiar position, might even be included with the second table, and still much the same remarks we have made would apply. The difference between *2l. 18s. 5d.*, which would then become the maximum, and the minimum of *2l. 12s. 6d.*, would still be comparatively immaterial in respect of the main question for an insurer, while the difference would be still less, of course, between the maximum, and all but the few companies near the minimum of *2l. 12s. 6d.* The extremes on either side would also be extended in no greater proportion, the maximum at age 26 becoming *2l. 9s. 1d.*, and at age 41 becoming *3l. 11s. 9d.*, instead of *2l. 7s. 8d.* and *3l. 9s. 9d.* respectively. Adding the premium income of Table I to the premium income of Tables II, III, and IV, the result would be that out of companies with a total premium income of 12,163,751*l.*, the companies with a premium income of 11,139,000*l.*, or  $91\frac{1}{2}$  per cent. of the total, charge rates of premium which differ so little from each other that the slightest shade of doubt about the security of a cheaper company ought to incline the insurer to the dearer. Of course the premiums being ‘with profit’ premiums, a great difference will be made by the various management of companies in respect of the risks they take, the rate of interest earned, and the proportion of expenses to the premium income, but the latter are the vital points and not the differences in the rate of premium. A company with premiums 5 per cent. lower than a neighbouring company, a difference which will include a wide range of companies, may manage so very much better as not only to give more ample security than the dearer company gives, but to insure a larger return to the policy holder in the shape of bonus. As regards most of the companies, therefore, as between themselves, the comparison of their premiums only serves to increase the importance of the other vital points to be examined in insurance accounts.

“A more interesting point arises upon Table V, that which includes the cheaper companies. These are only eight in number, with a premium income of 1,024,796*l.* only, or  $8\frac{1}{2}$  per cent. of the total, so that they are obviously a class apart from the others, and it is obvious that if we were to include them we could no longer say that the differences in the rates of premium charged are altogether immaterial. No less than three companies are included, with mean premiums of 50*s.*, or 5 per cent. lower than the minimum of

Table IV, and there is one company—the Scottish Provident—with a mean of 46s., or 12 per cent. lower than that minimum. Between these companies, and especially between the last of all, and the companies in Table I, as well as the highest in Table II, there is manifestly a great divergence, amounting in the extreme case to  $21\frac{1}{2}$  per cent., which is a very different matter from differences of premium amounting to 5 per cent. only, or perhaps amounting in extreme cases to  $7\frac{1}{2}$  or 10 per cent. It may be true that an insurer, if there is a shade of doubt, should still prefer the dearer company, even a difference of  $21\frac{1}{2}$  per cent. being only the difference between 29*l.* 5s. and 23*l.* in an insurance for 1,000*l.*, or a percentage of less than  $1\frac{1}{2}$  per cent. on an income of 500*l.*; but the divergence is so great as to suggest that there is a difference of principle in the methods followed—that the higher rates are deliberately adopted, or at least continued in practice, not because they are necessary for safety, but for extrinsic and incidental advantages. What these advantages may be will be a point for consideration; but if the cheaper companies are right in their practice, as far as safety is concerned, the choice as between them and the dearer companies cannot necessarily be given to the latter, on the score of safety, on a mere consideration of the premiums alone.

“Such is an account of the tables themselves, and we may now proceed to discuss some of the points they suggest. To some extent the remarks already made have raised some of these points, but explicit discussion may be useful.

“1. The great divergence between the cheaper and the dearer companies raises an important point. If the cheap companies are perfectly safe, as they seem to be, what is the advantage or disadvantage of insuring in them compared with the dearer companies? The extra charge for the latter above what is required for safety seems very large. One of the very cheapest companies, the Economic, has a proportion of  $8\frac{1}{2}$  per cent. of expenses to its premium income; and the still cheaper company, the Scottish Provident, has a proportion of 10·9 per cent. Adding to this latter figure the percentage by which the premiums of the companies at the top of the list exceed the lowest, or say 20 per cent., we make out the loading in the highest premiums to be at least 30 per cent. As some of the companies with these high premiums work with a proportion of expenses of only 5 per cent. or less, which is obviously sufficient, it would thus seem, on a mere comparison of premiums alone, that the excess of premiums in the case of the dearer companies above what is required for safety amounts to 25 per cent. The same conclusion would be enforced by a consideration of the position of other companies in Table V, or at the bottom of Table IV, where the proportion of expenses to premium income amounts to from 12 to 15 per cent., companies whose position and general reputation entitle them to be regarded as safe. It would also be enforced by an examination of the non-participating premiums of some of the dearer companies, these being about as low as the participating premiums of the Scottish Provident, and yet, it may be assumed, leaving some margin over. The excess above what is required for safety in the case of the dearer com-



panies may even be more than 25 per cent., but we state a figure which appears to be justified by a comparison of the practice of the companies themselves, quite apart from actuarial discussions, into which we do not enter. The question, then, is, what advantage an insurer gets by paying this 25 per cent.? The advantage would seem to be this—that the whole excess is an *investment*. An insurance of a certain sum being required for contingencies, the insurer voluntarily adds to his premium in order to save indirectly what he might not save directly. He assumes that he provides sufficiently for the contingency of death if it should happen soon, and if he lives to pay many high premiums the excess will be practically saved, and his family will receive it. Along with this goes a belief that probably the dear companies are the best and safest, as they have a larger margin, and some such idea, it may be supposed, helps at least to reconcile the insurer to paying a high premium. And this belief and practice are not without excuse. Certainly the general practice of English companies and of insurers with them is not to be condemned off-hand as unreasonable. All that need be pointed out is that an insurer paying a high premium necessarily counts on greatly adding to his policy by bonuses; that these bonuses enter into his calculation; and that an insurer paying a low premium is content with a more exact arrangement. The latter acts with more theoretical correctness, but the usage of the former is practical and English-like, and eminently safe.

“2. As between most of the companies, there is no necessity for regarding the rates of premium in judging of their management in respect of the proportion of expenses to premium income. A well informed correspondent in our columns suggested that it was not quite fair to compare companies having low premiums with companies having high premiums, for the same expenses, calculated on an income from premiums at a low rate, would bear a larger proportion than when calculated on an income from the same number of premiums at a high rate. But where the difference between the rates of premium is 5 per cent., or less, this would obviously be immaterial. A proportion of expenses amounting to 10 per cent., in the case of a company having 5 per cent. higher premiums than its neighbour, would still amount to no more than  $10\frac{1}{2}$  per cent. in the case of the latter company. Where the difference was 10 per cent., an amount of expenses giving a proportion of 10 per cent. in the one case would still only give 11 per cent. in the other. Even where the difference of premium is as great as 20 per cent.—an extreme instance—an amount of expenses giving a proportion of 10 per cent. in the one case would still only give 12 per cent. in the other. Where the differences in the amount and proportion of expenses to income are at all serious, the consideration of the difference in the rates of premium would not, as a rule, affect very much one's judgment of the management of a company. The lower the rate of premium, besides, the more necessity for care about the expenses, the margin being so much smaller.

“3. As already suggested, the important thing, as between most of the companies, is obviously not their rates of premium but their



management. The rates varying within limits of 5, 7, and even 10 per cent., it is quite plain that differences in the care with which risks are taken, in the rate of interest earned, and in the proportion of expenses to premium income, are more vital to insurers than differences in the rates of premium. The insurer must judge as best he can of these points, especially taking care, as regards the rate of interest earned, to steer between the Scylla of companies which are timid and lazy, and invest in solid securities enough but without getting the rates they might obtain with greater vigilance, and the Charybdis of other companies which venture too much among securities not of the first class for the sake of a higher rate. But as regards one of these points—the proportion of expenses to premium income—the table we formerly published, and the essential part of which we now repeat along with the statement of the premium, becomes an invaluable help. It is obvious that the point is of cardinal importance. It may well be that a company charges 5 per cent. more than a neighbour, but if the neighbour spends 15 per cent. or more in expenses and profits, and the first company only 5 per cent., it is the first company clearly which it is most advantageous to insure with. Unhappily, as our table shows, there are even greater differences between companies in the proportion of their expenses to premium income. Insurers cannot be urged too strongly to look to this point. The explanations of companies where the proportion is highest, as to their getting new business and the like, ought, of course, to be weighed, and our readers must understand that we are not discussing at present all the bearings of this question. We are only urging, in view of the great similarity of premiums at the insuring ages, its very great importance.

“With these remarks we lay the tables of comparative premiums before our readers. Apart from all other uses they have, we cannot but believe that they will be useful for reference, and they will be useful to ourselves at least in our future articles in ‘placing’ the respective companies we discuss.”

Tables showing the "With Profit" Premiums for the Whole of Life to Insure 100*l.* at Death the Mean of the Premiums at these Ages; also the Amount of the Premium Income of each in Order from the Highest to the Lowest Mean Annual Premium Charged.\* [From the

## I. Companies with a Mean Annual

	26.	27.	28.	29.	30.	31.	32.	33.	34.	35.
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
London Life†.....	54 6	55 6	56 6	57 9	59 3	60 6	62 —	63 6	65 3	67 —
Rock .....	49 1	50 1	51 1	52 3	53 5	54 7	55 9	57 1	58 5	59 10
Law Life.....	49 1	50 1	51 1	52 3	53 5	54 7	55 9	57 1	58 5	59 10
Equitable .....	49 1	50 1	51 1	52 3	53 5	54 7	55 9	57 1	58 5	59 10
Positive .....	46 9	48 —	49 3	50 7	52 —	53 5	54 11	56 3	58 6	59 11
Hand-in-Hand .....	45 4	46 8	47 11	49 4	50 8	52 2	53 9	55 4	57 —	58 9
Colonial .....	46 9	47 10	48 11	50 1	51 4	52 7	54 —	55 4	56 10	58 5
Norwich Union (N.S.)	47 7	48 7	49 7	50 8	51 9	52 11	54 2	55 5	56 9	58 2
Scottish Equitable	47 6	48 6	49 7	50 8	51 9	52 11	54 2	55 5	56 9	58 2
„ Widows' Fund	47 6	48 6	49 7	50 8	51 9	52 11	54 2	55 5	56 9	58 2
„ Amicable .....	47 5	48 5	49 6	50 7	51 9	52 11	54 2	55 5	56 9	58 2
Royal Exchange.....	47 —	48 1	49 3	50 5	51 7	52 10	54 1	55 4	56 9	58 2
United Kingdom .....	45 7	46 10	48 4	49 6	50 8	52 —	53 4	55 6	56 6	58 —
West of England .....	46 9	47 9	48 10	50 —	51 3	52 6	53 9	55 1	56 6	57 11

## II. Companies with a Mean Annual Premium

	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
Mutual .....	45 7	46 9	47 10	48 11	50 2	51 4	52 7	54 —	55 8	57 5
Legal and General.....	46 2	47 3	48 4	49 6	50 9	52 —	53 4	54 8	56 1	57 7
Pelican .....	45 5	46 7	47 9	49 —	50 4	51 8	53 1	54 6	56 —	57 7
Briton Med. and Gen.	45 1	46 4	47 8	48 10	50 1	51 4	52 9	54 3	55 10	57 6
National of Ireland .....	45 4	46 6	47 8	48 11	50 2	51 6	52 11	54 4	55 10	57 5
„ Provident .....	45 4	46 6	47 8	48 11	50 2	51 6	52 11	54 4	55 10	57 5
Provident .....	45 4	46 6	47 8	48 11	50 2	51 6	52 11	54 4	55 10	57 5
Atlas .....	45 4	46 6	47 8	48 11	50 2	51 6	52 11	54 4	55 10	57 5
Marine and General .....	45 4	46 6	47 8	48 11	50 2	51 6	52 11	54 4	55 10	57 5
Eagle† .....	46 6	47 6	48 6	49 7	50 8	51 10	53 1	54 4	55 8	57 1
National .....	46 —	47 —	48 1	49 2	50 4	51 6	52 9	54 2	55 7	57 1
Metropolitan Life .....	45 1	46 1	47 3	48 5	49 9	51 1	52 7	54 1	55 8	57 5
Provincial .....	46 4	47 4	48 4	49 6	50 7	51 10	53 —	54 4	55 8	57 —
University .....	46 8	47 7	48 7	49 8	50 9	51 11	53 —	54 3	55 6	56 11
Union .....	46 7	47 7	48 7	49 8	50 8	51 10	53 —	54 3	55 6	56 10
Eng. and Scottish Law	45 6	46 6	47 7	48 8	49 9	50 11	52 —	53 6	55 —	56 6
N. British & Mercantile	44 8	46 —	47 4	48 7	49 10	51 1	52 5	53 10	55 5	57 —
Imperial Life .....	46 —	47 —	48 —	49 1	50 3	51 5	52 7	53 10	55 3	56 8
Life Assoc., Scotland .....	45 3	46 6	47 9	49 3	50 —	51 —	52 3	53 9	55 3	57 —
Guardian.....	46 3	47 2	48 2	49 3	50 4	51 5	52 7	53 10	55 2	56 7
Scottish Union§.....	45 4	46 5	47 7	48 9	49 11	51 2	52 6	53 10	55 3	56 9
Gresham.....	45 —	46 —	47 2	48 5	49 7	50 9	52 —	53 5	55 —	56 7
General .....	45 1	46 2	47 4	48 7	49 10	51 1	52 5	53 9	55 1	56 6
Prudential   .....	44 5	45 8	47 —	48 4	49 6	50 9	52 1	53 6	55 —	56 8
Alliance .....	43 9	45 2	46 7	47 11	49 2	50 6	51 10	53 4	54 11	56 8
Sun Life .....	43 9	45 2	46 7	47 11	49 2	50 6	51 10	53 4	54 11	56 8

\* In the case of companies doing a foreign or colonial business, the premiums for the home

† These payments, it is stated, are calculated to allow a reduction of 60 per cent. after

‡ Return for half-year only.

§ Amalgamated with Scottish National.

of the undermentioned Life Insurance Companies at the Ages from 26 to 41 inclusive, with Company and the Proportion of Expenses to that of Income; the Companies being Classified Statistical Returns to the Board of Trade under the Life Insurance Companies Act of 1870.]  
Premium Exceeding 2l. 16s. 3d.

36.	37.	38.	39.	40.	41.	Mean Annual Premium.	Premium Income.	Proportion of Expenses to Premium Income.	
s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	£	Per cent.	
68 9	70 9	72 9	74 9	77 -	79 3	62 10	307,629	3'9	London Life †
61 4	62 10	64 6	66 2	67 11	69 9	58 5	142,367	10'2	Rock
61 4	62 10	64 6	66 2	67 11	69 9	58 5	254,784	8'0	Law Life
61 4	62 10	64 6	66 2	67 11	69 9	58 5	149,706	5'5	Equitable
61 10	63 9	65 9	67 9	69 9	71 9	58 2	39,408	50'5	Positive
60 7	62 7	64 7	66 8	68 10	71 3	57 -	136,264	8'3	Hand-in-Hand
60 -	61 8	63 6	65 4	67 4	69 5	56 10	9,177	75'1	Colonial
59 8	61 3	62 11	64 8	66 6	68 5	56 10	158,222	13'1	Norwich Union (N.S.)
59 9	61 3	63 -	64 6	66 3	68 2	56 9	204,345	13'1	Scottish Equitable
59 9	61 3	63 -	64 6	66 3	68 2	56 9	579,194	10'9	„ Widows' Fund
59 8	61 2	62 11	64 5	66 3	68 2	56 9	178,940	11'6	„ Amicable
59 8	61 2	62 9	64 6	66 3	68 2	56 7	138,960	10'9	Royal Exchange
59 4	61 6	63 -	65 1	67 4	69 6	56 4	22,567	53'5	United Kingdom
59 5	61 1	62 8	64 4	66 1	67 11	56 4	103,249	12'3	West of England
							2,424,812		

Exceeding 2l. 15s. and not Exceeding 2l. 16s. 3d.

s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	£	Per cent.	
59 4	61 2	63 3	65 4	67 6	69 9	56 1	81,046	12'7	Mutual
59 1	60 8	62 4	64 1	65 11	67 10	56 -	140,067	10'7	Legal and General
59 3	60 11	62 8	64 6	66 5	68 5	55 11	86,310	12'2	Pelican
59 3	61 1	63 -	65 -	66 9	68 6	55 10	157,712	9'4	Briton Med. and Gen.
59 -	60 9	62 6	64 4	66 3	68 4	55 9	14,280	25'0	National of Ireland
59 -	60 9	62 6	64 4	66 3	68 4	55 9	256,025	9'4	„ Provident
59 -	60 9	62 6	64 4	66 3	68 4	55 9	182,836	14'6	Provident
59 -	60 9	62 6	64 4	66 3	68 4	55 9	91,582	12'4	Atlas
59 -	60 9	62 6	64 4	66 3	68 4	55 9	28,619	23'8	Marine and General
58 7	60 2	61 10	63 7	65 5	67 4	55 9	132,103	9'7	Eagle †
58 7	60 3	62 -	63 10	65 9	67 9	55 7	66,203	11'9	National
59 1	60 9	62 7	64 5	66 4	68 5	55 7	147,814	5'2	Metropolitan Life
58 6	60 -	61 7	63 3	65 -	66 9	55 7	32,427	19'5	Provincial
58 4	59 9	61 4	62 11	64 7	66 4	55 6	51,232	10'9	University
58 3	59 9	61 3	62 10	64 7	66 8	55 6	97,523	14'2	Union
58 6	60 3	62 3	64 3	66 6	68 9	55 5	129,617	14'6	Eng. and Scottish Law
58 6	60 2	62 -	64 1	66 1	67 11	55 4	309,894	11'9	N. British & Mercantile
58 2	59 8	61 4	63 1	64 11	66 10	55 3	81,442	13'4	Imperial Life
58 3	60 -	61 3	63 3	65 3	67 3	55 2	328,454	14'4	Life Assoc., Scotland
58 -	59 6	61 1	62 9	64 6	66 5	55 2	115,500	11'9	Guardian
58 3	59 10	61 6	63 3	65 -	66 10	55 2	159,609	15'2	Scottish Union §
58 3	60 -	61 10	63 10	65 10	68 -	55 1	413,717	26'4	Gresham
58 2	59 10	61 7	63 5	65 4	67 4	55 1	95,303	20'1	General
58 4	60 2	62 -	63 11	65 11	67 11	55 1	1,134,170	50'3	Prudential
58 5	60 4	62 4	64 5	66 6	68 7	55 -	99,181	10'7	Alliance
58 5	60 4	62 4	64 5	66 6	68 7	55 -	130,443	14'3	Sun Life
							4,563,109		

business are taken for comparison.

seven payments.

|| Including in expenses 141,000l. of special new business charges.

## III. Companies with a Mean Annual Premium

	26.		27.		28.		29.		30.		31.		32.		33.		34.		35.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Reliance .....	44	1	45	4	46	8	47	11	49	4	50	8	52	1	53	7	55	1	56	9
London & Provin. Law	45	1	46	3	47	5	48	8	49	10	51	1	52	4	53	8	55	1	56	6
Law, Property, and Life	44	11	45	11	47	1	48	3	49	5	50	8	52	-	53	5	54	10	56	5
Liv. and Lon. & Globe*	44	11	46	-	47	1	48	3	49	5	50	8	52	-	53	5	54	10	56	5
London and Southwark	44	3	45	6	46	9	48	1	49	4	50	8	52	-	53	4	54	10	56	5
Emperor .....	44	5	45	7	46	9	48	-	49	3	50	7	52	-	53	5	54	11	56	6
British Equitable .....	44	1	45	3	46	5	47	8	49	-	50	4	51	9	53	3	54	10	56	6
Midland Counties .....	45	6	46	5	47	6	48	8	49	11	51	-	52	2	53	5	54	9	56	2
Caledonian .....	45	3	46	5	47	7	48	9	49	10	50	11	52	1	53	5	54	9	56	1
Sovereign .....	44	10	45	11	47	-	48	2	49	4	50	7	52	-	53	4	54	9	56	3
London Assurance.....	45	-	46	-	47	2	48	4	49	6	50	8	52	-	53	4	54	9	56	3
Law Union.....	44	9	45	10	47	-	48	2	49	4	50	5	51	9	53	3	54	9	56	7
United Kent .....	45	3	46	3	47	4	48	6	49	8	50	11	52	2	53	7	54	11	56	3
Royal .....	45	3	46	4	47	6	48	7	49	9	51	-	52	2	53	5	54	9	56	2
Yorkshire .....	44	6	45	9	47	-	48	4	49	7	50	5	51	9	53	2	54	8	56	3
Queen .....	44	10	45	11	47	1	48	2	49	4	50	6	51	9	53	1	54	5	56	-
Scottish Commercial....	44	8	45	8	46	9	47	11	49	1	50	3	51	6	52	10	54	4	56	-
Commercial Union.....	44	9	45	11	47	1	48	3	49	5	50	7	51	9	53	-	54	4	55	9
Scottish Imperial .....	44	7	45	9	47	-	48	2	49	3	50	5	51	8	52	11	54	4	55	10
Westminster and Gen.	43	9	45	-	46	4	47	7	48	10	50	-	51	4	52	8	54	3	55	10
Scottish National†.....	43	10	45	2	46	6	47	9	49	-	50	2	51	6	53	-	54	6	55	10
Patriotic of Ireland ...	43	9	45	-	46	4	47	7	48	9	50	-	51	4	52	9	54	3	55	10
Star .....	43	9	45	-	46	4	47	7	48	9	50	-	51	4	52	9	54	3	55	11
Masonic and General....	43	9	45	-	46	3	47	6	48	9	50	-	51	3	52	9	54	3	56	-
United King. Temp. ....	43	10	45	-	46	4	47	7	48	10	50	-	51	4	52	9	54	3	55	7
Cler. Med. and General	43	9	45	-	46	3	47	6	48	9	50	-	51	3	52	9	54	3	55	9
Equity and Law.....	44	3	45	3	46	5	47	8	48	10	50	1	51	6	52	11	54	3	55	10
Standard † .....	44	1	45	3	46	6	47	9	48	11	50	1	51	4	52	8	54	1	55	8
Imperial Union § .....	44	1	45	1	46	1	47	2	48	5	49	8	51	2	52	8	54	2	55	8
Great Britain .....	44	-	45	-	46	1	47	2	48	4	49	7	51	-	52	4	53	10	55	5
Sceptre .....	43	6	44	10	46	2	47	5	48	8	49	10	51	-	52	6	54	1	55	8
National Guardian ....	43	6	44	9	46	2	47	4	48	6	49	9	51	-	52	5	53	11	55	6
City of Glasgow Life....	43	5	44	8	46	-	47	2	48	5	49	8	50	11	52	4	53	10	55	5

\* With guaranteed bonus.  
as yet of the amalgamated company.

† Amalgamated with Scottish Union. The

§ In this case the policies are payable at specified ages as well as at death.

## IV. Companies with a Mean Premium

	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
British Empire .....	43	5	44	8	45	10	47	-	48	3	49	7	50	11	52	5	53	10	55	4
British Workman's ....	43	1	44	3	45	6	46	8	47	11	49	3	50	7	52	1	53	8	55	2
Scottish Provincial ....	42	11	44	3	45	7	46	10	48	1	49	4	50	8	52	1	53	7	55	2
Universal .....	44	4	45	5	46	7	47	8	48	10	49	11	51	-	52	3	53	7	54	11
Lancashire .....	44	-	45	-	46	-	47	-	48	6	49	6	50	9	52	-	53	10	55	-
Northern .....	43	1	44	4	45	7	46	10	48	-	49	3	50	6	51	11	53	5	54	11
Whittington .....	43	6	44	6	45	8	46	10	48	-	49	2	50	2	51	6	53	-	54	8
Edinburgh .....	43	-	44	1	45	3	46	5	47	7	48	10	50	2	51	6	53	-	54	6
Crown .....	42	5	43	8	44	10	46	1	47	4	48	9	50	1	51	6	53	-	54	6
Royal Farmers' .....	42	4	43	7	44	10	46	1	47	5	48	9	50	1	51	6	53	-	54	6
Church of England ....	42	6	43	6	44	7	45	8	46	10	48	1	49	6	50	10	52	4	53	11



Exceeding 2l. 13s. 9d. and not Exceeding 2l. 15s.

36.		37.		38.		39.		40.		41.		Mean Annual Premium.	Premium Income.	Proportion of Expenses to Premium Income.		
s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	£	Per cent.	
58	4	60	1	61	11	63	11	65	10	68	—	55	—	85,400	21·1	Reliance
58	—	59	8	61	3	63	—	64	10	66	9	55	—	80,739	9·5	London & Provin. Law
58	—	59	9	61	6	63	6	65	6	67	7	54	11	3,783	13·9	Law, Property, and Life
58	—	59	9	61	6	63	5	65	5	67	7	54	11	235,341	9·4	Liv. and Lon. & Globe*
58	1	59	10	61	9	63	8	65	8	67	8	54	10	4,124	15·0	London and Southwark
58	2	59	10	61	7	63	7	65	7	67	7	54	10	14,352	34·4	Emperor
58	2	60	—	61	11	63	11	66	—	68	2	54	10	126,282	27·3	British Equitable
57	8	59	3	60	10	62	8	64	8	66	4	54	10	2,741	17·1	Midland Counties
57	7	59	3	61	—	62	9	64	6	66	4	54	9	64,073	16·8	Caledonian
57	11	59	7	61	4	63	2	65	2	67	2	54	9	74,652	14·3	Sovereign
57	10	59	5	61	2	63	—	64	11	66	11	54	9	159,455	9·9	London Assurance
57	8	59	4	61	2	63	2	65	3	67	2	54	9	65,728	13·4	Law Union
57	7	59	—	60	7	62	4	64	3	66	4	54	8	21,514	11·6	United Kent
57	7	59	1	60	8	62	4	64	1	65	11	54	8	245,058	9·9	Royal
57	6	59	3	61	1	63	2	65	—	66	5	54	7	41,433	12·3	Yorkshire
57	6	59	3	61	1	63	—	65	—	66	5	54	7	52,383	14·1	Queen
57	8	59	4	61	1	62	11	64	11	67	—	54	6	13,519	9·6	Scottish Commercial
57	3	58	11	60	8	62	5	64	2	66	—	54	5	97,178	14·3	Commercial Union
57	5	59	—	60	9	62	6	64	4	66	2	54	4	24,664	13·2	Scottish Imperial
57	6	59	3	61	2	63	3	65	—	67	—	54	4	46,182	20·9	Westminster and Gen.
57	6	59	4	61	—	62	8	64	6	66	6	54	4	98,206	16·8	Scottish National †
57	6	59	3	61	1	63	—	65	—	67	1	54	3	9,571	8·5	Patriotic of Ireland
57	6	59	3	61	1	63	—	64	11	66	11	54	3	197,298	16·2	Star
57	6	59	3	61	—	63	—	65	—	67	—	54	3	5,318	56·2	Masonic and General
57	6	59	3	61	1	63	—	64	11	66	11	54	3	225,844	13·0	United King. Temp.
57	6	59	3	61	—	63	—	65	—	67	—	54	3	185,434	11·1	Cler. Med. and General
57	5	59	—	60	9	62	7	64	6	66	6	54	3	123,590	10·1	Equity and Law
57	3	58	11	60	8	62	6	64	5	66	3	54	2	575,222	13·7	Standard ‡
57	4	59	—	60	10	62	8	64	6	66	7	54	1	2,613	52·8	Imperial Union §
57	2	58	11	60	10	62	10	65	—	67	3	54	1	70,149	34·0	Great Britain
57	4	59	—	60	10	62	9	64	8	66	8	54	1	27,479	25·9	Sceptre
57	2	58	11	60	9	62	8	64	8	66	5	54	—	666	12·3	National Guardian
57	—	58	10	60	7	62	6	64	6	66	5	53	10	134,919	14·2	City of Glasgow Life
													3,114,910			

last returns of each company in the blue books have been made use of, there being no return

† Home scheme, with profits equal division.

Exceeding 2l. 12s. 6d. and not Exceeding 2l. 13s. 9d.

s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	£	Per cent.					
56	6	58	7	60	4	62	3	64	2	66	2	53	9	101,962	20·6	British Empire
56	11	58	9	60	7	62	5	64	6	66	8	53	8	33,387	61·6	British Workman's
56	11	58	8	60	7	62	6	64	6	66	3	53	7	129,924	15·7	Scottish Provincial
56	5	58	—	59	7	61	3	63	—	64	9	53	7	121,239	10·5	Universal
56	6	58	—	59	9	61	6	63	6	65	6	53	6	60,498	11·4	Lancashire
56	7	58	4	60	1	62	—	63	11	65	10	53	5	157,581	9·9	Northern
56	4	58	2	60	2	62	2	64	2	66	2	53	5	40,013	28·7	Whittington
56	1	57	9	59	6	61	3	63	2	65	2	52	11	165,656	14·2	Edinburgh
56	1	57	10	59	6	61	4	63	4	65	5	52	10	138,788	13·5	Crown
56	1	57	9	59	6	61	4	63	4	65	5	52	10	9,940	17·2	Royal Farmers'
55	8	57	5	59	4	61	4	63	6	65	9	52	6	77,136	14·4	Church of England
										1,036,124						

## V. Companies with a Mean

	26.	27.	28.	29.	30.	31.	32.	33.	34.	35.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
London and Lancashire	42 -	43 3	44 5	45 8	46 10	48 -	49 3	50 8	52 1	53 7
Provident Clerks' .....	41 3	42 7	43 11	45 2	46 4	47 7	48 10	50 3	51 9	53 5
Wesleyan and General	43 9	44 -	45 5	45 10	46 4	46 11	47 5	50 6	51 7	52 5
Clergy Mutual .....	41 4	42 6	43 10	45 -	46 4	47 6	48 8	50 -	51 6	53 -
Argus .....	41 1	42 1	43 2	44 3	45 5	46 8	47 11	49 3	50 7	52 1
Friends Provident .....	42 1	43 -	43 10	44 9	45 9	46 9	47 9	48 10	50 -	51 2
Economic .....	40 -	41 -	42 -	43 1	44 3	45 5	46 8	48 -	49 5	50 11
Scottish Provident.....	38 6	39 2	39 11	40 8	41 6	42 6	43 5	44 6	45 7	46 10

Number of Com- panies.	Summary.	Premium Income.
	£ s. d.	£
14	Companies with mean premiums exceeding 2 16 3 .....	2,424,812
26	" " " 2 15 - and not above 2l. 16s. 3d. ....	4,563,109
33	" " " 2 13 9 " 2l. 15s. -d. ....	3,114,910
11	" " " 2 12 6 " 2l. 13s. 9d. ....	1,036,124
8	" not exceeding 2 12 6 .....	1,024,796
92	Total .....	12,163,751

VII.—*Report of a Committee with reference to the Census of 1881.*

A COPY of the following Report, approved of, and adopted by the Council, has been submitted to the President of the Local Government Board.

*The COMMITTEE APPOINTED by the COUNCIL of the STATISTICAL SOCIETY of LONDON, on the 13th November, 1879, for the PURPOSE of CONSIDERING "Whether any SUGGESTIONS can with "advantage be MADE as regards IMPROVEMENTS in the INQUIRIES, "or MACHINERY, connected with the CENSUS of 1881," herewith submit their REPORT.*

It appears to the Committee that the subject referred to them divides itself into two branches:—

1. The nature and form of the inquiries to be made.
2. The form in which the information, when obtained, is to be abstracted and published.

*Premium not Exceeding 2l. 12s. 6d.*

36.	37.	38.	39.	40.	41.	Mean Annual Pre- mium.	Premium Income.	Proportion of Expenses to Premium Income.	
<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	£	Per cent.	
55 2	56 11	58 8	60 6	62 4	64 3	52 1	55,846	32·6	London and Lancashire
55 1	56 10	58 9	60 8	62 8	65 2	51 11	94,219	13·9	Provident Clerks'
52 7	53 7	56 8	61 10	64 5	66 4	51 10	18,927	29·1	Wesleyan and General
54 8	56 6	58 4	60 2	62 2	64 —	51 7	196,517	6·9	Clergy Mutual
53 7	55 2	56 11	58 8	60 7	62 7	50 8	26,475	10·6	Argus
52 5	53 8	55 1	56 6	58 1	59 8	50 —	81,284	11·2	Friends Provident
52 6	54 2	55 11	57 9	59 9	61 10	49 7	227,231	8·6	Economic
48 2	49 8	51 3	52 11	54 9	56 8	46 —	324,297	10·9	Scottish Provident
							1,024,796		

As the Census Bills will be soon laid before Parliament, and the opinion of the Council on the former branch should be submitted without delay to the Government, the Committee have deemed it desirable to confine their attention, in the first instance, to that branch, and to such points in the second branch as are necessarily connected with it, and to reserve their suggestions on the latter for a future report.

The Committee are of opinion:—

1. That the results of the Census should be presented to the public, not, as hitherto, in the form only of separate reports on the three divisions of the United Kingdom, but in a general report on the whole Kingdom, with tables exhibiting the more important facts relating to the whole collectively. At the same time it is desirable not to dispense with the separate reports hitherto published.

2. That the same information should be obtained, and consequently the same form of inquiries should be adopted, throughout the whole Kingdom, including the Isle of Man and the Channel Islands.

The reasons for these recommendations are—That the past arrangement makes it difficult for all but statistical adepts to ascertain the leading facts relating to the population of the United Kingdom at one view; while the difficulty for adepts is greatly increased by the necessity and consequent expense of procuring three series of costly volumes; or is even rendered insuperable by the results being so classified in the three separate reports, and the annexed tables, as to make it impossible to combine them in a form applicable to the whole of the Kingdom.

3. That the occasion of each recurring census shall be taken by the Government to require from all public departments under its control who are charged with the supervision of any branch of the national life, special reports, in as much detail as will be practicable and useful, at the date, or as near as convenient to the date, of the General Census.

As examples of the intention of the Committee, they would cite

the Education Committee of the Privy Council, who can supply the statistics of education, and render it unnecessary to make inquiries on this subject in the Householder's Schedule. The Local Government Board can supply detailed returns regarding pauperism, to which the Commissioners of Charities can add further valuable information. Reports from the Commissioners of Prisons and Lunacy will throw light upon the subjects of crime and disease. The Board of Trade can supply the agricultural returns in more detail than usual; while the Inspectors of Factories and Mines might furnish returns bearing upon the industrial condition of the population.

The Committee, although deeply impressed with the importance of obtaining an Industrial Census of the Kingdom, have hesitated to recommend it on this occasion, looking to the careful preliminary consideration which must be given to the details of the arrangements for its prosecution, and also to the additional expense which its preparation would entail; but they desire to record their conviction that it is desirable that before the next following Census, steps should be taken to combine such a census with the general enumeration of that year.

In the meantime the Government may be able, from the sources above indicated, and perhaps from large public companies having the management of railways, docks, &c., &c., to procure a series of returns, which, when brought together in an Appendix to the General Census Report, will form a very important and valuable addition to that document.

4. That it is desirable, for a variety of purposes, connected with the growth and movement of the population, the provision of sanitary arrangements, and the testing of the conclusions drawn from the periodical returns of births, deaths, and marriages, that a census should be taken every five, instead of every ten, years.

If the labour and expense of such a census in the same form as that adopted for the Decennial Census should be deemed too great, the Committee recommend that a nominal census only should be taken, which would show the number of houses, and the number and ages of the population. This, the Committee have reason to believe, could be carried out, and its results could be abstracted and published, at a small cost.

The Committee are satisfied that if a census were taken more frequently, a machinery might be organised which would tend to the enumeration being more accurately and more completely taken on each occasion, and to the abstracts being more rapidly given to the public.

They would call attention to the fact, that although the several preliminary reports of the Census of 1871, taken on the 3rd April, were furnished in the following June, the final reports, with the detailed tables, were dated as follows:—

For England and Wales .....	30th July, 1873.
„ Scotland .....	1st May, '74.
„ Ireland .....	29th Sept., '75.

Several causes appear to have contributed to the delay in the



presentation of the Irish Report, some of which will be obviated on the approaching occasion, and the Committee will, in their next report, recommend a change in the form of the Abstract Returns which will greatly expedite the work.

With these preliminary general observations, the Committee submit the following Recommendations to the Council, with the suggestion that, if adopted, they should be forwarded without delay to the President of the Local Government Board, together with a copy of this report, both in print, for the convenience of perusal and reference:—

### *Recommendations.*

1. That with a view to a General Report upon the population of the United Kingdom, to be prepared under such authority as Her Majesty's Government and the Legislature may decide, the same form of Householder's Schedule should be adopted throughout the whole Kingdom.
2. That the Census of 1881 should embrace all the information obtained on the last occasion, with the additions hereinafter suggested.
3. That in accordance with previous recommendations, and in agreement with the Census of Ireland, and of most of the British Colonies, including the most important, in 1871, the religious profession of each inhabitant should be obtained by the insertion of a column for that purpose in the Householder's Schedule.

NOTE.—The Committee object to its being left optional to persons to fill up this column, and to any limitation of the heads under which they should describe themselves.

4. That in continuance of the inquiry successfully made in Scotland in 1861 and 1871, information should be obtained thence, and for the other divisions of the United Kingdom, as to the house accommodation, *i.e.*, as to the number of rooms in each dwelling house.

NOTE.—The density of the population in a district is determined by the number of inhabitants in a given space, but the number of inhabitants which any locality can accommodate with due regard to sanitary laws is resolved by the number of houses used for habitation, and the accommodation those houses afford. Thus from either the greater housing capacity of the buildings, or the greater proportion of inhabitable dwellings, one district can with security to health possess a greater density of population than another. A return of the number of rooms in each house, and an enumeration likewise of the dwellings used for habitation, are requisite for the proper consideration of the subject.

5. That "dwelling" houses designed for habitation should be distinguished from those designed for other purposes, such as stores, warehouses, school houses, factories, offices and chambers, &c.
6. That dwelling houses not in actual occupation, and "being

“to let,” should be distinguished and classified separately in the abstracts.

NOTE.—The distinction hitherto adopted regarding houses has been between inhabited and uninhabited houses, and houses building. If the above two suggestions be adopted, houses will be divided into:—

Dwelling-houses—inhabited.	
”	not inhabited.
”	of which “to let.”
”	building.
Other buildings.	

7. That the headings of the last column but one of the Householder’s Schedule, for recording the place “where born,” be changed as follows, with the double object of adapting the schedule to the whole of the Kingdom, and of eliciting the birthplace of all British born persons, instead of confining it to those born in the same division of the Kingdom, as at present.

#### PROPOSED FORM.

##### *Where Born.*

Opposite the names of those born in the United Kingdom, write the county, and town or parish.

If born out of the United Kingdom, write the particular State or country.

The Committee do not attach much value to the addition made in the original schedule, viz. :—“And if also a British subject, add, “‘British subject,’ or ‘naturalised British subject,’ as the case “may be;” but to meet the case of the children of British parents born abroad, they would suggest the addition of the words, “If of “‘British parents,’ add those words.”

8. That steps be taken to ascertain from what departments of the Government, and from what public bodies, such reports as have been suggested in the first part of this report should be obtained, and that timely measures be taken to obtain them.
9. That in the instructions with regard to filling up the column of Employments, care be taken to remove, as far as practicable, the difficulties which experience has pointed out as hindering an exact definition and classification of the occupations of the population.
10. That in making arrangements for the Census of 1881, they should be framed with the prospect of a similar, or an intermediate partial, Census in 1886.
11. That for the promotion of municipal and sanitary objects, of works of construction and production, and for other useful purposes, means should be afforded to the public of obtaining, at a reasonable charge, more detailed information regarding any locality than it is necessary or convenient to supply in the general tables.

NOTE.—The Committee apprehend that the central authorities, by whom the Census is made and its results are abstracted, must confine the abstracts to fixed and recognised boundaries, and that any variation from these can only be designed by persons possessing local information, and with a definite object in each case. The existence of some permanent census machinery in connection with the General Census Office, would facilitate the preparation of such returns, as well as of those which the legislature and the executive would, doubtless often, desire to obtain, if the means of abstracting them were in existence.

The Committee conclude this Report with the remark that the first six of the above Recommendations and the ninth and tenth are in substantial agreement with the Resolutions of the Council of "The National Association for the Promotion of Social Science," which have already been brought to the notice of the Government.

RAWSON W. RAWSON,  
*Chairman.*

STATISTICAL SOCIETY OF LONDON,  
7th February, 1880.

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### VIII.—*Notes on Economical and Statistical Works.*

*La Transformation des Moyens de Transport et ses conséquences économiques et sociales.* Par Alfred de Foville, Chef de Bureau au Ministère des Finances, &c. (Ouvrage couronné par l'Académie des Sciences Morales et Politiques.) Paris, Guillaumin et Cie., 1880.

This able and interesting volume deals with a branch of what may be termed social physiology. It treats of the development and functions of means of communication. M. de Foville commences by laying down the proposition that movement is as essential to the life of a people as to that of an animal or a plant; and that according as the internal movement of a community is or is not highly developed, the people composing it may be considered as advanced or behindhand in civilisation. The cause of this movement occurring in society is the necessity for exchange, both of manufactured commodities and raw produce, and the equal or greater necessity of rapid personal movement. And the need for the exchange of these arises from the great differences in the products of different parts of the globe, and in the characters of the men who dwell in them. This process of interchange is the basis of modern life, and "just as in the animal world, the degree of perfection of each species is measured by the development of the apparatus of circulation, in like manner the degree of civilisation of each people may be measured by the importance, efficiency, and value of its channels and means of communication." With this view of the subject constantly before him, M. de Foville has carefully investigated, first, the general development of means of communication,

and next, the economic, moral, political, and other social effects that have been produced by, or which have at all events appeared simultaneously with, the successive stages of this development. The book is pre-eminently, but by no means exclusively, a book about railways. The means by which the internal movements of society were formerly effected have long since either succumbed altogether, or have taken a new lease of life as assistants and feeders to their conqueror. "The principal peoples of Europe have completed their main systems, and are only occupied in increasing their ramifications." But the steamship, the canal, the electric telegraph, and the tramway also receive the notice due to them. The first part of the volume treats of the direct results of the application of steam and electricity to the purposes of man. By the direct results are meant not so much the actual physical results, such as the existence of so many miles of railway in the various countries, and of so much steam tonnage in their merchant marines, but two general results, namely, the increase of speed and diminution of cost. M. de Foville begins by endeavouring to obtain an idea of the rapidity and cost of movement before the introduction of railways. The *data* for this investigation are not extensive, but he gives some very interesting facts regarding this part of the subject, in so far as it concerns France, in which country locomotion was for a long time slower than elsewhere. The tables relative to the speed attained on various railways in different countries contain little that is novel, and it is the question of cost on which the author has bestowed most pains. Concerning the cost of travelling in the last century, M. de Foville quotes from a guide book published in 1775, which is now rarely met with. This curious work gives detailed estimates of all the expenses of travelling in most of the countries of Europe. The writer's notions of expense are those of a wealthy man, as may be seen from the fact that he proposed to spend 340 frs. in England, and 300 frs. in France *per diem*. The last official regulation affecting post horses in France was issued in 1840. Previous to the introduction of railways, M. de Foville estimates the mean cost of locomotion at 14 centimes per kilometre; the cost of travelling by rail, even as early as 1835, was about 8 centimes per kilometre. Since then, in consequence of successive changes in the tariff, the mean cost has fallen to 5.19 centimes. These amounts relate to passengers. The saving as compared with the earlier modes of travelling is thus about 55 per cent. M. de Foville does not overlook the fact of the great expense of laying down railways. He gives a table, showing the cost, per kilometre, of railways in various countries in 1858 to 1875. That cost is still much higher in England than anywhere else, but the cost has risen a good deal on the continent during the period referred to. M. de Foville then examines the tariffs of countries other than France. In England he finds the rates rather higher than in France, not apparently making allowance for rebates and other reductions, which very materially diminish the actual cost of carriage here. The saving in the cost of travelling effected by the introduction of steam was much greater here than elsewhere, because the cost of travelling was much higher in



England before that event. Belgium appears to have tried several experiments in tariffs, without any very satisfactory result. As regards the carriage of merchandise, M. de Foville estimates the saving consequent on the employment of steam at about 75 per cent. per ton kilometre. This calculation is probably correct as regards France, though the taxes and some other charges are not included in it, on the ground that they are a set off against similar taxes on the older modes of transport, and also that the use of the roads was practically gratuitous. As a curiosity among the tariffs in force in other countries, M. de Foville cites those on some of the wheat carrying lines of the United States in 1878-79, when competition had driven them down to rates which were equivalent to a charge of 1·2 *centimes per ton kilometre*. He quotes the opinion of several able French engineers, that the railway tariffs can hardly go lower, and are very likely to rise in future. The grounds of this opinion are the tendency of wages to rise; but M. de Foville thinks that this cause of increased cost may be neutralised by improvements in the working of the lines, and by judicious developments of the traffic. In speaking of the increased security of modern travelling, the author points to the defective information supplied as to accidents affecting servants of the companies, and hints that it would be well to imitate England in this matter. In France there has been, it seems, no account of the accidents to railway servants published for any year later than 1869. Turning from railways to roads, M. de Foville remarks that these latter have by no means been rendered useless by the spread of railways, but have on the contrary increased steadily in length, besides having more spent on them per kilometre. Their function is chiefly to feed the railways, and consequently roads which cross the general direction of a railway system, have gained in importance at the expense of those parallel to it. The author here enters on an interesting mathematical investigation of the attraction exercised by a railway connecting two important centres. By the aid of a little elementary geometrical conics, M. de Foville is able to show that the "zone of attraction" of the two terminal stations will be respectively the two branches of a hyperbola, which has the two stations for its foci, and the middle point of the line joining them for its centre. There is a good deal that is interesting and valuable in those portions of the work which are devoted to canals, and to the ocean highway. The "indirect" effects of the improved modes of locomotion are treated in as systematic a manner as the "direct" effects of the employment of steam. We need not speak of them at length, however, as they are a portion of the subject matter of works on the general progress of civilisation. The principal effect dwelt on by M. de Foville is the unification of prices, and he gives some rather striking instances of the differences in the price of wheat which existed even as late as 1847, in which year there was a difference of 20 frs. between the market prices in two departments of France per hectolitre of wheat. The author remarks that the improvement in our means of communication, both by land and sea, has practically resulted in rendering famine an impossibility in the civilised world. Among the minor economic effects, he mentions

the tendency to concentrate retail business, and thus kill out the smaller traders. In conclusion, we are glad to find that M. de Foville takes a hopeful view of the prospects of free trade in France.

*A History of the Precious Metals, from the Earliest Times to the Present.* By Alexander Del Mar, U. S., formerly Director of the Bureau of Statistics of the United States; Member of the United States Monetary Commission of 1876. (George Bell and Sons, 1880.)

Mr. Del Mar's work is intended as a successor to that of Mr. William Jacob. Mr. Jacob's book may fairly be considered out of date, considering the immense increase in the production of the precious metals that has occurred since he wrote. Besides this, Mr. Del Mar is able to show that, with all his ability and care, Mr. Jacob fell into more than one serious error, particularly in underestimating the productiveness of Brazil. These deficiencies are noted in the preface to Mr. Del Mar's book. Speaking of the work of his predecessor, our author says, "It fails to mark the significant agency of conquest and slavery in the production of gold and silver; it is vitiated throughout by unsafe calculations of the world's stock of these metals in ancient and mediæval times; it affords no information of the very considerable movement from Japan to Europe during the sixteenth and seventeenth centuries; it scarcely mentions, and thus underrates the importance of the Brazilian placers which have yielded to the world nearly 200 million pounds sterling of gold; it contains no connected history, indeed, but little mention, of the ratio of value between gold and silver; and it omits all reference to the devastation of the earth, and the social mischiefs entailed upon mining countries by the search for these metals." On all points except the last, Mr. Del Mar seems to have made out his case, but his remarks about the moral and material mischief produced by gold and silver mining are too sweeping. That, however, is a minor point, and does not detract from the merit of the book as a comprehensive treatise on the history of the precious metals. Mr. Del Mar, while objecting to the vague and unsatisfactory guesses of Mr. Jacob, as to the amounts of gold and silver existing in early periods, refuses to attempt to give an estimate himself. As regards Brazil, he calculates the gold production of that country up to 1870 at 180 million pounds.

*Economic Studies.* By the late Walter Bagehot. Edited by Richard Holt Hutton. (Longmans, Green, and Co., 1880.)

This volume contains the incomplete fragments of a work which Mr. Bagehot had intended to write, but was unable to finish, unfortunately for the world. The main point we notice in this exceedingly interesting book is its logical connection with the author's "Physics and Politics," a work in which he shows how one great "peculiarity of this age," the "sudden acquisition of much physical knowledge," has operated to modify the notions formerly held on politics and political economy. As regards the latter the extension of our knowledge of the conditions of life in various countries and at various periods, gave rise to the historical school of economists, who deny that there are any laws of economics at all.

Mr. Bagehot held that the older economists were not wrong in their views of the economic conditions of modern England, but that the historic school were sound in their opposition to the attempts of later writers of the "orthodox" school to apply these views to all countries and all periods. He also held that as other countries advance in wealth and civilisation, the extent of the applicability of the general doctrines inculcated by Ricardo and Mill will increase. The phenomena of "business" will be the same wherever "business" is done, and the theories which are true or almost true in England, the land of "business," will become true in other countries in time. Briefly, then, Mr. Bagehot may be said to have gone far on the road to reconciling the conflicting claims of "orthodox and historical" economics, for which alone he would have deserved the gratitude of all who perceived the logical need for such a reconciliation in the interests of economic science itself. Their thanks are also due to Mr. Hutton, Mr. Bagehot's intimate friend, to whose careful and patient labour they are indebted for the arrangement of the papers which are here published. The latter were at the untimely death of their author, in some confusion, to which the mind that had produced them alone had the key, and Mr. Hutton's self-imposed task was consequently not altogether an easy one.

#### IX.—Notes on some of the Additions to the Library.

*Annuaire Statistique de la Norvège. Première Année, 1879.*  
Élaboré dans le Bureau Central de Statistique. Kristiania, 1879.

The Norwegian Statistical Office have decided to publish an annual volume containing a *résumé* of the more important statistical information which is obtained in that kingdom each year. This, the first volume of the kind, is necessarily somewhat imperfect. Apparently, it is intended that it should be, to a large extent, modelled on the Statistical Abstract of the Board of Trade. In all cases where the figures were obtainable they are given for a series of years, and in nearly every case those for two or three years are supplied. The returns are brought down to 1878 as regards the population, national finances, imports and exports, banking, and in some other instances. The difficulty of producing the first volume of such a work is much greater than that of issuing those subsequent to it, and its value for practical purposes cannot be overestimated.

*Resultados Generales del Censo de la Poblacion de Espana segun el empadronamiento hecho en 31 de Diciembre, 1877.* Por la Direccion General del Instituto Geografico y Estadistico. Madrid, 1879.

The returns of the Spanish Census, taken on 31st December, 1877, show that the actual residents in Spain at that date numbered 16,625,860 persons. There were also 565,554 persons returned as "absent," of whom the great majority were Spanish subjects, the remainder, 1,088, being foreigners. The returns are given by



provinces and districts, the most populous province being Barcelona, with 835,306 persons, and that with the least population being Alava, with 93,191. As the information contained in this volume is confined to a statement of the number of persons, male and female, who were resident in Spain at the date of the census, there is nothing further of interest to say regarding it. Apparently the Spanish authorities are of the same opinion, for the remarks of the Count of Toreno, who signs the introduction, are very meagre. It appears that since 1860, when the last census previous to this was taken, there has been an increase of population amounting to 952,324 persons, or about 6 per cent.

*Storia e teoria generale della Statistica* del Dr. Antonio Gabaglio, Professore di Statistica nel R. Istituto Tecnico e Incaricato di tale insegnamento nella R. Università di Pavia. Con nove tavole miniate. Ulrico Hoepli. Ulilavo, 1880.

We had occasion to notice, in the *Journal* of the Society for March, 1878, the able and lucid work of M. Maurice Block, entitled *Traité Théorique et Pratique de Statistique*, and in that for December, 1877, we commented on the profound volume by Dr. Mayr on *Die Gesetzmässigkeit im Gesellschaftsleben*. We have now to record the appearance of another volume on the same subject—the work of Dr. Antonio Gabaglio, the Professor of Statistics in the University of Pavia. Of all the books on the scientific theory of statistics with which we are acquainted, this of Dr. Gabaglio is the most exhaustive, and, on the whole, the most satisfactory. This assertion is not intended as any disparagement of the works of Dr. Mayr and M. Block, for the purpose of each of these two writers was different from that of Dr. Gabaglio. The three authors agree to a very large extent in their conception of the nature of statistics, and in their modes of expounding it; but Dr. Mayr, when he wrote *Die Gesetzmässigkeit im Gesellschaftsleben* addressed an audience presumably unacquainted with the subject. He furnished a manual of statistics for the use of that large and increasing body of intelligent persons who desire to possess a general conception of the principles of science in general, and of the nature and methods of the particular sciences. Accordingly Dr. Mayr described with unrivalled skill the nature of statistics and its relation to the sociological sciences, and gave a *résumé* of the more general results that have been arrived at by means of statistics. On the other hand, M. Block applied himself to the historical and practical sides of statistical inquiry, and paid great attention to setting forth the results of his own valuable experience as bearing on the problems presented to the officials of statistical departments. The theoretical aspect of statistics received only a general, and not always a sound, treatment at his hands. The treatise of Dr. Gabaglio is a complete analysis of the theory of statistics, and a complete historical account of their rise and progress, so far as such an account was needful for his purpose. The first third of the volume deals with this latter subject. It is divided into chapters, of which the first two, extending over about forty pages, contain such information as is available regarding what, by courtesy, is called “statistics in antiquity and in the middle ages.”



We then have a chapter which carries the history of statistics down to Quételet, and in which the work of the various contributors to the advancement of statistics is touched on briefly. The remaining five chapters of the first part are devoted to an account of the work done in Belgium, France, Germany, England, and Italy, since Quételet, by the publication of his famous "Letters," gave to statistics the *status* of a branch of scientific knowledge. The special views of each writer in each country are briefly described, and this portion of the work therefore forms a valuable epitome of the views of the chief statistical authorities of Europe, on those first principles of statistics regarding which there is more or less difference of opinion among those competent to form a judgment. That Germany obtains the lion's share of the space devoted to this historical inquiry is natural, and we can hardly blame an Italian for giving rather more space to his own country than the number of eminent Italian statisticians would perhaps warrant. But certainly England has no right to grumble at the small amount of space allotted to her, for hitherto, unhappily, English works on the theory of statistics have resembled the too famous "snakes of Norway"—there have been none. Dr. Gabaglio generously endeavours to make out a case for us by mentioning the names of John Stuart Mill and Buckle, as well as that of Porter. But though Porter was a great practical statist, he was not strong as regards theory, and neither Mill nor Buckle devoted their abilities to statistics, except in a purely incidental way. It is true there are passages in Mill's works, particularly in his remarkable essay *On the Definition and Method of Political Economy*, as well as in the concluding chapters of the *Logic*, which bear on the theory of statistics, but we doubt whether the writer realised the full scope of the remarks in question. And as to Buckle, his great work is statistical only in the sense in which that of Achenwall and the older "descriptive" school receives the title. Nevertheless, there are passages in the *History of Civilisation* which show that a dim conception of the function of statistics was present to the mind of this author also. The second part of Dr. Gabaglio's work is nominally divided into six chapters, but Chapter V, "On the Method of Statistics" occupies by far the greater part of it. The first chapter, after dealing briefly with the etymology of the word "statistics," discusses various definitions that have been proposed for it, and in particular criticises the distinction proposed to be drawn by several of the German writers between *Statistik* and *Staatenkunde*, between the "theory of statistics," and the "statistics of a State." Dr. Gabaglio considers this nomenclature objectionable on more grounds than one, and we agree with him. He proceeds to consider the defects of the definitions offered by the various authors whose views are stated in Chapters IV to VIII of Part I. The criticisms are generally sound, but we do not think that Dr. Gabaglio altogether does justice to M. Block, in saying that his definition "represents statistic as a simple description of the actual state, which makes no use of numbers, and does not trouble about laws." M. Block expressly says at the commencement of his "partie théorique" that statistic, as a science, is identical with

"demography," and he elsewhere defines demography as "la science de l'homme vivant en société, en tant qu'elle peut être exprimée par les chiffres," which is really not bad as a mere description of this branch of knowledge. Dr. Gabaglio's charge is rather too sweeping therefore, but we admit that there is a certain want of accuracy and rigidity about the theoretical portion of M. Block's work which cannot but be displeasing to so close a reasoner as Dr. Gabaglio. As we have already said, M. Block is less a master of theoretical than of practical statistics. When we come to our author's own definition, we find that according to it the science of statistics (*statistica come scienza*) is "the study of the actual social-political order by means of mathematical induction." Against this definition we have little to say. It is perhaps rather better than Engel's, and is certainly preferable to Mayr's, both of which make statistics intrude, to some extent, on the sphere of general sociology, but the view taken by all three authorities is essentially the same. We are rather inclined to take exception to the term "mathematical induction" (*induzione matematica*), as equivalent to what the Germans call "*Massenbeobachtung*," which excellent word may be translated "aggregate observation." The phrase "mathematical induction" does not indicate with sufficient clearness the processes which are intended to be denoted by it. There is an additional objection to its use, that this phrase is already appropriated to a procedure of mathematics proper, namely, the artifice by which the laws of permutations and combinations, to take a simple instance, are demonstrated, in which we show that if a certain law empirically assumed for a series of terms, holds when a particular number of the terms is taken, it will also hold when that number is increased by one. On the other hand, the term "aggregate observation" or "*Massenbeobachtung*," or "*osservazione collettiva*," thoroughly expresses the nature of the characteristic process of statistics. In Chapters II and III the author defines the limits of statistics, and its relations with the other social sciences, such as economics, politics, "social physiology," "social psychology," and history, as well as with jurisprudence. Here we think that Dr. Gabaglio fails to deal satisfactorily with the subject, on grounds which we can for the present only indicate. It seems to us fundamentally erroneous to set up statistics as an independent social science, the proper conception being that statistics is essentially a method applicable to all sciences alike, but pre-eminently to the social sciences. When applied to sociology the function of statistics is to extricate and render perceptible the facts relating to communities of human beings; the facts themselves, when thus made perceptible, must be dealt with by the sciences under which they come. This is very nearly, though not quite, coincident with M. Block's view. Chapter V, the most important of all, treats of the method of statistics. Dr. Gabaglio commences with a dissertation on scientific method in general. The phenomena of society are produced by causes, some of which are constant and some variable. Phenomena of this class may be investigated in three ways. First, by "observation of external psychical activity associated with observation of internal observation." (From the context, this rather obscure

sentence appears to mean "by observation of the external manifestations in others of psychical processes, coupled with observation of the processes of one's own mind." Second, by "historical observation" (the historical method). Third, by "collective, or mass, observation." At this point Dr. Gabaglio inserts his statement of the difference between the method of statistics and mathematics. Mathematics deal with abstract quantity, while the objects of statistical investigation are not abstract quantities, but "facts translated into concrete quantities." The method is applicable to all the sciences. We work by aid of the statistical *method* when we investigate the climates of countries, and the meteorological phenomena which affect them. We employ the statistical *science* when we apply the results of these investigations to explain the phenomena of mortality, or investigate the influence of the prices of the chief means of subsistence on the number of marriages or of crimes. Dr. Gabaglio treats exhaustively, with the aid of simple mathematical formulæ, of all the forms of statistics. He uses the method of least squares for determining probable values whenever it is possible, and he concludes by giving a full description of the nature and use of diagrams, and of the useful method of graphic representation. Taken as a whole, this volume is the most complete work on statistics which has, as far as we know, appeared in any language, and to students of this important branch of knowledge its value cannot but be great.

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## REGISTRATION OF THE UNITED KINGDOM.

## No. I.—ENGLAND AND WALES.

MARRIAGES—To 30TH SEPTEMBER, 1879.

BIRTHS AND DEATHS—To 31ST DECEMBER, 1879.

A.—*Serial Table of MARRIAGES, BIRTHS, and DEATHS, returned in the Years 1879-73, and in the QUARTERS of those Years.*

*Calendar YEARS, 1879-73 :—Numbers.*

Years .....	'79.	'78.	'77.	'76.	'75.	'74.	'73.
Marriages No.	—	189,657	194,343	201,835	201,212	202,010	205,615
<i>Births</i> ..... „	882,866	891,418	887,055	887,464	850,607	854,956	829,778
Deaths .... „	528,194	539,574	500,348	510,308	546,453	526,632	492,520

QUARTERS of each *Calendar Year, 1879-73.*

(I.) MARRIAGES:—*Numbers.*

<i>Qrs. ended last day of</i>	'79.	'78.	'77.	'76.	'75.	'74.	'73.
March..... No.	35,851	39,106	39,755	41,757	42,376	41,413	41,217
June ..... „	46,488	48,433	49,054	51,218	48,410	52,827	53,408
September „	45,071	46,510	47,732	49,135	49,826	49,144	49,709
December „	—	55,608	57,802	59,725	60,600	58,626	61,281

(II.) BIRTHS:—*Numbers.*

<i>Qrs. ended last day of</i>	'79.	'78.	'77.	'76.	'75.	'74.	'73.
March..... No.	226,669	221,567	230,036	229,980	214,862	214,514	215,744
June ..... „	221,011	228,702	223,220	225,866	214,939	217,598	206,516
September „	218,170	222,004	213,190	216,167	211,109	210,323	204,167
December „	217,016	219,145	220,609	215,451	209,697	212,521	203,351

(III.) DEATHS:—*Numbers.*

<i>Qrs. ended last day of</i>	'79.	'78.	'77.	'76.	'75.	'74.	'73.
March..... No.	156,390	139,825	135,000	142,269	162,256	136,518	132,432
June ..... „	132,186	129,111	131,289	126,212	130,999	123,907	118,582
September „	103,733	129,348	109,565	119,909	121,547	124,253	114,676
December „	135,885	141,290	124,494	121,918	131,651	141,954	126,830

*Annual Rates of MARRIAGES, BIRTHS, and DEATHS, per 1,000 PERSONS  
LIVING in the Years 1879-73, and in the QUARTERS of those Years.*

*Calendar YEARS, 1879-73:—General Ratios.*

YEARS.....	'79.	Mean '69-78.	'78.	'77.	'76.	'75.	'74.	'73.
Estmtd. Popln. of England in thousands in middle of each Year....	25,165,	—	24,854,	24,547,	24,244,	23,944,	23,649,	23,356,
Persons Mar- ried .....	—	16·6	15·3	15·8	16·6	16·8	17·1	17·6
<i>Births</i> .....	35·1	35·7	35·9	36·1	36·5	35·5	36·2	35·5
<i>Deaths</i> .....	21·0	21·8	21·7	20·4	21·0	22·8	22·3	21·1

*QUARTERS of each Calendar Year, 1879-73.*

*(I.) PERSONS MARRIED:—Ratio per 1,000.*

<i>Qrs. ended last day of</i>	'79.	Mean '69-78.	'78.	'77.	'76.	'75.	'74.	'73.
March .....	11·6	13·7	12·8	13·1	13·8	14·4	14·2	14·3
June .....	14·8	16·8	15·6	16·0	16·9	16·2	17·9	18·3
September .....	14·2	16·1	14·8	15·4	16·1	16·5	16·5	16·9
December .....	—	19·6	17·8	18·7	19·5	20·1	19·7	20·8

*(II.) BIRTHS:—Ratio per 1,000.*

<i>Qrs. ended last day of</i>	'79.	Mean '69-78.	'78.	'77.	'76.	'75.	'74.	'73.
March .....	36·5	37·1	36·2	38·0	38·0	36·4	36·8	37·5
June .....	35·2	36·2	36·9	36·5	37·4	36·0	36·9	35·5
September .....	34·4	34·7	35·4	34·5	35·4	35·0	35·3	34·7
December .....	34·2	34·8	35·0	35·7	35·3	34·7	35·7	34·5

*(III.) DEATHS:—Ratio per 1,000.*

<i>Qrs. ended last day of</i>	'79.	Mean '69-78.	'78.	'77.	'76.	'75.	'74.	'73.
March .....	25·2	24·1	22·8	22·3	23·5	27·5	23·4	23·0
June .....	21·1	21·2	20·8	21·5	20·9	21·9	21·0	20·4
September .....	16·4	20·2	20·6	17·7	19·6	20·1	20·8	19·5
December .....	21·4	21·9	22·6	20·1	20·0	21·8	23·8	21·5



B.—Comparative Table of CONSOLS, PROVISIONS, COAL, and PAUPERISM in each QUARTER of 1877-78-79.

Quarters ending	Average Prices of							PAUPERISM.	
	CONSOLS (for Money) per 100l. Stock.	DIS-COUNT charged by the Bank of Eng-land.	WHEAT per Quarter in England and Wales.	MEAT per Pound at the Metropolitan Meat Market (by the Carcase), with the Mean Prices.		POTATOES (Best Quality) per Ton at Waterside Market, Southwark.	COAL (Sea-borne) in the London Market per Ton.	Quarterly Average of the Number of Paupers Relieved on the Last Day of each Week.	
				Beef.	Mutton.			In-door.	Out-door.
1877	£		s. d.	d. d. d.	d. d. d.	s. s. s.	s. d.		
Mar. 31	95 $\frac{7}{8}$	2·0	51 4	4 $\frac{1}{2}$ —7 $\frac{3}{4}$	5—9 $\frac{3}{8}$	138—172	16 8	152,778	532,697
				6 $\frac{1}{8}$	7 $\frac{1}{8}$	155			
June 30	94 $\frac{7}{8}$	2·9	61 5	4 $\frac{1}{2}$ —8 $\frac{1}{4}$	4 $\frac{3}{4}$ —9 $\frac{1}{4}$	136—174	18 2	143,674	523,878
				6 $\frac{3}{8}$	7	155			
Sept. 30	95 $\frac{1}{8}$	2·4	62 —	4 $\frac{1}{2}$ —8 $\frac{1}{4}$	4 $\frac{3}{4}$ —9 $\frac{1}{2}$	97—126	17 7	139,211	509,110
				6 $\frac{1}{2}$	7 $\frac{1}{2}$	111			
Dec. 31	96 $\frac{1}{4}$	4·5	52 4	3 $\frac{3}{4}$ —8	4 $\frac{1}{4}$ —8 $\frac{3}{4}$	152—174	18 3	151,701	512,339
				5 $\frac{7}{8}$	6 $\frac{1}{2}$	163			
1878									
Mar. 31	95 $\frac{3}{8}$	2·4	50 10	4 $\frac{1}{8}$ —8 $\frac{1}{8}$	4 $\frac{5}{8}$ —9 $\frac{1}{4}$	188—212	16 2	162,442	540,571
				6 $\frac{1}{8}$	7	200			
June 30	95 $\frac{5}{8}$	2·8	50 2	4 $\frac{1}{2}$ —8 $\frac{5}{8}$	5—9 $\frac{1}{2}$	150—187	16 4	151,715	533,787
				6 $\frac{3}{8}$	7 $\frac{1}{4}$	168			
Sept. 30	95 $\frac{1}{8}$	4·3	44 6	4 $\frac{1}{2}$ —8 $\frac{1}{8}$	4 $\frac{3}{4}$ —9 $\frac{1}{4}$	120—151	16 —	145,956	513,616
				6 $\frac{3}{8}$	7	135			
Dec. 31	95	5·4	40 2	4 $\frac{1}{4}$ —7 $\frac{3}{4}$	4 $\frac{7}{8}$ —8 $\frac{3}{4}$	111—132	17 4	159,721	523,996
				6	6 $\frac{7}{8}$	121			
1879									
Mar. 31	96 $\frac{1}{4}$	3·3	39 —	3 $\frac{7}{8}$ —7 $\frac{1}{4}$	4 $\frac{1}{2}$ —8 $\frac{1}{2}$	118—144	16 6	172,200	599,991
				5 $\frac{5}{8}$	6 $\frac{1}{2}$	131			
June 30	98 $\frac{1}{2}$	2·0	41 2	4 $\frac{1}{8}$ —7 $\frac{1}{4}$	4 $\frac{3}{4}$ —9	128—161	16 2	159,946	567,915
				5 $\frac{3}{4}$	6 $\frac{7}{8}$	144			
Sept. 30	97 $\frac{2}{3}$	2·0	47 2	4—7 $\frac{2}{3}$	4 $\frac{5}{8}$ —9	182—233	14 10	157,113	548,755
				5 $\frac{5}{8}$	6 $\frac{7}{8}$	207			
Dec. 31	98	2·6	48 1	3 $\frac{3}{8}$ —7 $\frac{1}{4}$	4 $\frac{1}{2}$ —7 $\frac{7}{8}$	136—160	15 10	173,099	565,644
				5 $\frac{1}{2}$	6 $\frac{1}{4}$	148			

C.—General Average Death-Rate Table:—Annual Rate of Mortality to 1,000 of the Population in the Eleven Divisions of England and Wales.

Divisions.	Average Annual Rate of Mortality to 1,000 Living in						
	Ten Years,		Year	1879. Quarters ending			
	1851-60.	1861-70.		March.	June.	Sept.	Dec.
England and Wales .....	22·2	22·4	21·7	25·2	21·1	16·4	21·4
I. London .....	23·6	24·3	23·4	27·1	22·4	18·4	24·9
II. South-Eastern .....	19·6	19·1	17·8	20·3	17·8	13·1	17·0
III. South Midland .....	20·4	20·2	18·8	22·3	19·5	14·0	18·0
IV. Eastern .....	20·6	20·1	19·5	23·0	20·2	15·4	18·7
V. South-Western .....	20·0	19·9	19·3	23·1	19·6	14·0	18·8
VI. West Midland .....	22·4	21·8	21·6	25·1	21·2	15·4	20·4
VII. North Midland .....	21·1	20·8	20·9	25·9	21·4	17·0	21·8
VIII. North-Western .....	25·5	26·3	25·9	30·6	23·1	18·9	25·4
IX. Yorkshire .....	23·1	24·0	22·6	25·5	21·1	17·0	21·2
X. Northern .....	22·0	22·7	21·7	22·4	20·9	17·1	19·8
XI. Monmthsh. and Wales ....	21·3	21·6	21·1	24·3	21·8	16·3	19·6

**D.—Special Average Death-Rate Table:—ANNUAL RATE of MORTALITY per 1,000 in TOWN and COUNTRY DISTRICTS of ENGLAND in each Quarter of the Years 1879-77.**

	Area in Statute Acres.	Population Enumerated. 1871.	Quarters ending	Annual Rate of Mortality per 1,000 in each Quarter of the Years			
				1879.	Mean '69-78.	1878.	1877.
In 134 Districts, and 57 Sub-districts, comprising the Chief Towns .....	3,184,419	12,900,142	March ..	26·6	25·8	24·5	23·8
			June ....	21·6	22·5	22·2	22·7
			Sept. ....	17·5	22·7	23·1	19·2
			Dec. ....	23·8	24·3	24·8	22·3
			Year ....	22·4	23·8	23·7	22·0
In the remaining Dis- tricts and Sub-districts of England and Wales, comprising chiefly Small Towns and Country Parishes .....	34,134,802	9,812,124	Year ....	19·1	19·2	19·0	18·2
			March ..	23·2	21·8	20·5	20·2
			June ...	20·3	19·4	18·9	19·6
			Sept. ....	14·7	16·9	17·2	15·6
			Dec. ....	18·0	18·6	19·4	17·2

*Note.*—The three months January, February, March, contain 90, and in leap year 91 days; the three months April, May, June, 91 days; and each of the last two quarters of the year, 92 days. For this inequality a correction is made in calculating the rate of mortality in the different quarters of the year.

**E.—Special Town Table:—POPULATION; BIRTH-RATE and DEATH-RATE in each Quarter of 1879, in TWENTY-THREE Large Towns.**

Cities, &c.	Estimated Population in the Middle of the Year 1879.	Annual Rate to 1,000 Living during the Thirteen Weeks ending							
		29th March. (1st Quarter.)		28th June. (2nd Quarter.)		27th September. (3rd Quarter.)		3rd Jan., 1880. (4th Quarter.)*	
		Births.	Deaths.	Births.	Deaths.	Births.	Deaths.	Births.	Deaths.
Total of 23 towns in U. K.	8,502,896	37·8	27·8	35·7	22·7	35·6	18·4	35·6	24·6
London .....	3,620,868	38·0	27·1	35·4	22·4	35·8	18·4	36·7	24·9
Brighton .....	105,608	29·0	21·3	31·2	18·0	28·8	16·2	30·2	20·2
Portsmouth .....	131,821	32·4	20·3	31·3	15·8	31·5	13·0	31·7	17·7
Norwich .....	85,222	35·2	25·9	34·9	22·0	31·4	17·4	34·7	22·7
Plymouth .....	74,293	34·0	23·6	29·1	21·7	32·6	17·3	30·1	26·8
Bristol .....	209,947	38·0	23·8	34·8	20·1	35·4	16·5	35·2	23·7
Wolverhampton .....	75,100	42·1	27·8	38·4	23·3	34·7	16·0	37·3	23·8
Birmingham .....	388,884	42·4	26·6	40·5	22·4	38·4	16·6	39·2	23·1
Leicester .....	125,622	40·2	26·1	35·9	19·9	38·1	18·0	36·0	22·4
Nottingham .....	169,396	37·8	26·9	35·7	20·7	35·2	17·4	35·4	25·3
Liverpool .....	538,388	40·8	32·9	37·5	23·6	38·4	21·4	38·9	30·2
Manchester .....	361,819	38·8	35·1	35·7	25·8	36·4	20·5	34·5	26·2
Salford .....	177,849	44·4	31·5	38·1	22·8	40·3	19·5	37·7	25·7
Oldham .....	111,318	35·6	27·5	34·0	21·3	34·9	17·2	34·0	20·8
Bradford .....	191,046	35·7	24·7	31·6	21·1	31·2	16·8	33·0	22·0
Leeds .....	311,860	38·1	26·5	36·3	21·0	36·5	18·3	36·6	24·3
Sheffield .....	297,138	36·5	26·4	35·8	21·0	35·6	16·5	35·6	21·2
Hull .....	146,347	39·7	26·4	40·8	21·8	39·7	16·8	38·3	23·9
Sunderland .....	114,575	41·7	24·6	40·8	22·8	38·6	19·5	36·5	20·8
Newcastle-on-Tyne .....	146,948	37·4	25·4	37·3	25·4	36·8	20·9	35·9	22·8
Edinburgh .....	226,075	33·0	21·8	34·3	20·6	31·8	16·5	32·2	19·7
Glasgow .....	578,156	35·8	26·6	36·3	22·0	33·2	17·0	31·4	21·3
Dublin .....	314,666	31·8	43·3	32·7	36·5	32·4	25·1	28·4	35·6

\* This quarter contains fourteen weeks.

F.—*Divisional Table*:—MARRIAGES in the Year ending 30th September; and BIRTHS and DEATHS in the Year ending 31st December, 1879, as Registered Quarterly.

1 DIVISIONS. (England and Wales.)	2 AREA* in Statute Acres.	3 POPULATION, 1871. (Persons.)	4 5 6 7 MARRIAGES in Quarters ending			
			31st December, 1878.	31st March, 1879.	30th June, 1879.	30th September, 1879.
			No.	No.	No.	No.
ENGLD. & WALES....Totals	37,319,221	22,712,266	55,608	35,851	46,488	45,071
I. London.....	75,362	3,254,260	9,533	6,276	8,524	9,137
II. South-Eastern .....	3,994,431	2,167,726	5,205	3,095	4,184	4,096
III. South Midland .....	3,201,325	1,442,654	3,278	1,530	2,304	2,230
IV. Eastern .....	3,211,441	1,218,728	3,162	1,530	1,946	1,708
V. South-Western .....	4,981,170	1,880,777	3,646	2,496	3,228	2,871
VI. West Midland .....	3,945,460	2,721,931	6,369	3,847	5,112	4,875
VII. North Midland.....	3,535,445	1,406,935	3,455	1,996	3,130	2,541
VIII. North-Western.....	1,998,914	3,389,044	8,429	6,408	7,639	7,937
IX. Yorkshire .....	3,702,384	2,444,762	6,333	4,352	5,173	4,849
X. Northern .....	3,547,947	1,365,041	3,067	2,330	2,610	2,516
XI. Monmthsh. & Wales	5,125,342	1,420,408	3,131	1,991	2,638	2,311

8 DIVISIONS. (England and Wales.)	9 10 11 12 BIRTHS in each Quarter of 1879 ending				13 14 15 16 DEATHS in each Quarter of 1879 ending			
	31st March.	30th June.	30th Septem- ber.	31st Decem- ber.	31st March.	30th June.	30th Septem- ber.	31st Decem- ber.
	No.	No.	No.	No.	No.	No.	No.	No.
ENGLD. & WALES....Totals	226,669	221,011	218,170	217,016	156,390	132,186	103,733	135,885
I. London .....	34,262	31,900	32,276	35,658	24,429	20,248	16,633	24,230
II. South-Eastern .....	19,511	18,647	19,007	19,169	12,407	11,024	8,198	10,629
III. South Midland.....	13,007	12,861	12,311	12,370	8,733	7,739	5,625	7,205
IV. Eastern .....	10,736	10,847	10,219	10,716	7,305	6,472	5,012	6,087
V. South-Western .....	14,585	14,187	13,901	13,646	10,935	9,388	6,772	9,063
VI. West Midland .....	27,555	26,992	25,894	25,365	18,367	15,660	11,492	15,266
VII. North Midland.....	14,495	14,305	13,993	13,960	9,643	8,067	6,476	8,295
VIII. North-Western.....	38,458	36,620	37,163	35,292	28,685	21,944	18,137	24,338
IX. Yorkshire .....	25,728	25,179	25,365	24,741	17,822	14,933	12,138	15,149
X. Northern .....	15,192	15,633	14,925	13,817	8,875	8,380	6,958	8,049
XI. Monmthsh. & Wales	13,140	13,840	13,116	12,282	9,189	8,331	6,292	7,574

\* These are revised figures, and will be found to differ somewhat from those first published.

## G.—General Meteorological Table,

[Abstracted from the particulars supplied to the

1879. Months.	Temperature of									Water of the Thames	Elastic Force of Vapour.		Weight of Vapour in a Cubic Foot of Air.	
	Air.			Evaporation.		Dew Point.		Air— Daily Range.			Mean.	Diff. from Average of 38 Years.	Mean.	Diff. from Average of 38 Years.
	Mean.	Diff. from Average of 108 Years.	Diff. from Average of 38 Years.	Mean.	Diff. from Average of 38 Years.	Mean.	Diff. from Average of 38 Years.	Mean.	Diff. from Average of 38 Years.					
Jan. ....	31·9	-4·7	-6·8	30·4	-6·8	27·0	-8·2	7·1	-2·6	34·9	In. ·146	In. -·056	Grs. 1·7	Gr. -0·7
Feb. ....	38·2	-0·5	-1·2	36·7	-1·0	34·7	-0·4	8·3	-2·9	38·9	·201	-·006	2·3	-0·1
Mar. ...	41·2	+0·1	-0·4	38·5	-0·7	35·2	-1·1	14·2	-0·4	43·0	·205	-·010	2·4	-0·1
Mean ...	37·1	-1·7	-2·8	35·2	-2·8	32·3	-3·2	9·9	-2·0	38·9	·184	-·024	2·1	-0·3
April ...	43·2	-2·9	-4·0	40·7	-3·4	37·6	-3·0	16·3	-2·2	46·4	·225	-·029	2·6	-0·3
May. ....	48·4	-4·1	-4·3	44·7	-4·2	40·7	-4·5	18·3	-2·1	52·0	·254	-·046	2·9	-0·6
June ...	56·9	-1·3	-2·1	53·8	-0·6	51·0	+0·4	17·4	-3·8	59·6	·374	+·004	4·2	+0·1
Mean ...	49·5	-2·8	-3·5	46·4	-2·7	43·1	-2·4	17·3	-2·7	52·7	·284	-·024	3·2	-0·3
July. ....	58·1	-3·5	-4·1	55·6	-2·1	53·4	-0·5	15·5	-5·7	60·5	·409	-·008	4·6	-0·1
Aug. ...	59·9	-1·0	-1·6	57·4	0·0	55·2	+1·4	16·4	-3·4	62·9	·436	+·018	4·9	+0·3
Sept. ...	56·3	-0·2	-0·8	53·8	-0·1	51·4	+0·4	16·3	-2·2	58·8	·379	+·001	4·3	-0·1
Mean ...	58·1	-1·6	-2·2	55·6	-0·7	53·3	+0·4	16·1	-3·8	60·7	·408	+·004	4·6	0·0
Oct. ....	49·1	-0·5	-1·1	47·5	-0·7	45·8	-0·2	12·6	-2·2	—	·308	-·005	3·5	-0·1
Nov. ...	38·3	-4·0	-5·2	36·5	-4·8	34·2	-5·2	10·2	-1·4	—	·197	-·049	2·3	-0·5
Dec. ...	32·4	-6·7	-7·6	31·3	-7·2	28·8	-7·9	10·6	+1·2	—	·158	-·062	1·9	-0·6
Mean ...	39·9	-3·7	-4·6	38·4	-4·2	36·3	-4·4	11·1	-0·8	—	·221	-·039	2·6	-0·4

Note.—In reading this table it will be borne in mind that the sign (—) minus signifies

The mean temperature of the air for October was  $49^{\circ}1$ , being  $0^{\circ}5$  and  $1^{\circ}1$  respectively, below the averages of the preceding 108 years and 38 years. It was  $2^{\circ}4$  lower than the value in 1878.

The mean temperature of the air for November was  $38^{\circ}3$ , being  $4^{\circ}0$  and  $5^{\circ}2$  respectively, below the averages of the preceding 108 years and 38 years. In the preceding 108 years there are but four instances of so cold a November, viz., in the year 1782,  $34^{\circ}7$ ; in 1786,  $36^{\circ}7$ ; in 1851,  $37^{\circ}9$ ; and in 1871,  $37^{\circ}6$ .

The mean temperature of the air for December was  $32^{\circ}4$ , being  $6^{\circ}7$  and  $7^{\circ}6$  respectively, below the averages of the preceding 108 years and 38 years. It was the coldest December in this century, and there are but three instances of so cold a December back to 1771, viz., in the year 1784,  $31^{\circ}0$ ; in 1788,  $29^{\circ}0$ ; and in 1796,  $30^{\circ}4$ .



for the Year ended 31st December, 1879.

Registrar-General by JAMES GLAISHER, Esq., F.R.S., &c.]

Degree of Humidity.		Reading of Barometer.		Weight of a Cubic Foot of Air.		Rain.		Daily Horizontal Movement of the Air.	Reading of Thermometer on Grass.					1879. Months
Mean.	Diff. from Average of 38 Years	Mean.	Diff. from Average of 38 Years.	Mean.	Diff. from Average of 38 Years.	Amnt.	Diff. from Average of 64 Years.		Number of Nights it was			Lowest Reading at Night.	Highest Reading at Night.	
									At or below 30°.	Between 30° and 40°.	Above 40°.			
80	— 7	In. 29·851	+·097	Grs. 563	Grs. +10	In. 2·6	+0·7	Miles. 283	24	7	0	18·7	33·0	January
87	+ 2	29·363	—·438	547	— 6	3·8	+2·3	303	11	14	3	23·0	44·9	Feb.
80	— 2	29·809	+·069	552	+ 2	0·6	—1·0	316	13	17	1	24·9	42·2	March
82	— 2	29·674	—·091	554	+ 2	Sum 7·0	Sum +2·0	Mean 301	Sum 48	Sum 38	Sum 4	Lowest 18·7	Highest 44·9	Mean
81	+ 3	29·520	—·241	544	+ 1	2·6	+0·9	229	8	20	2	24·0	40·5	April
75	— 1	29·833	+·052	544	+ 3	3·4	+1·3	260	8	14	9	24·6	45·5	May
80	+ 6	29·641	—·171	531	— 1	4·3	+2·3	277	0	3	27	35·8	56·6	June
79	+ 3	29·665	—·120	540	+ 1	Sum 10·3	Sum +4·5	Mean 255	Sum 16	Sum 37	Sum 38	Lowest 24·0	Highest 55·6	Mean
84	+ 9	29·628	—·177	529	+ 1	3·7	+1·2	314	0	0	31	40·0	58·5	July
85	+ 9	29·672	—·114	528	0	5·2	+2·8	285	0	0	31	41·0	56·2	August
84	+ 4	29·802	—·003	534	+ 1	2·8	+0·4	221	0	3	27	36·0	57·0	Sept.
84	+ 7	29·701	—·098	530	+ 1	Sum 11·7	Sum +4·4	Mean 273	Sum 0	Sum 3	Sum 89	Lowest 36·0	Highest 58·5	Mean
89	+ 3	29·952	+·253	545	+ 6	0·8	—2·0	253	3	12	16	29·2	50·0	October
85	— 3	30·034	+·295	559	+11	0·9	—1·5	239	18	11	1	16·0	42·2	Nov.
87	— 1	30·139	+·353	568	+16	0·6	—1·4	230	24	7	0	13·7	37·5	Dec.
87	0	30·024	+·300	557	+11	Sum 2·3	Sum —4·9	Mean 241	Sum 45	Sum 30	Sum 17	Lowest 13·7	Highest 50·0	Mean

below the average, and that the sign (+) plus signifies above the average.

The mean temperature of the air for the quarter was 39°·9, being 3°·7 and 4°·6 respectively below the averages of the preceding 108 years and 38 years.

The mean high day temperatures of the air were 2°·8, 5°·4, and 7°·5 respectively, below their averages in October, November and December.

The mean low night temperatures of the air were 0°·6, 4°·0, and 8°·5 respectively, below their averages in October, November and December. Therefore the days and nights were cold throughout the quarter, and particularly so in November and December.

## No. II.—SCOTLAND.

## BIRTHS, DEATHS, AND MARRIAGES, IN THE YEAR

ENDED 31ST DECEMBER, 1879.

I.—Serial Table :—Number of BIRTHS, DEATHS, and MARRIAGES in Scotland, and their Proportion to the Population estimated to the Middle of each Year, during each Quarter of the Years 1879-75 inclusive.

	1879.		1878.		1877.		1876.		1875.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
<i>1st Quarter—</i>										
Births .....	31,830	3'51	31,226	3'48	31,256	3'51	32,333	3'67	31,096	3'56
Deaths .....	22,364	2'47	20,320	2'26	20,525	2'31	21,294	2'41	25,116	2'87
Marriages ..	5,956	0'66	6,063	0'63	5,977	0'67	6,663	0'75	6,369	0'73
Mean Tem- perature }	34°·0		39°·9		38°·5		37°·9		38°·7	
<i>2nd Quarter—</i>										
Births .....	32,968	3'64	33,629	3'74	33,355	3'75	33,088	3'75	32,294	3'70
Deaths .....	18,784	2'04	19,514	2'17	19,586	2'20	19,270	2'18	19,518	2'23
Marriages ..	6,050	0'67	6,095	0'68	6,735	0'76	6,459	0'73	6,638	0'76
Mean Tem- perature }	46°·8		50°·4		47°·5		49°·2		50°·73	
<i>3rd Quarter—</i>										
Births .....	31,436	3'47	31,236	3'48	30,988	3'45	30,790	3'49	30,123	3'45
Deaths .....	15,115	1'67	17,344	1'93	15,919	1'79	16,465	1'87	18,050	2'07
Marriages ..	5,061	0'56	5,508	0'61	5,694	0'64	5,895	0'67	5,723	0'65
Mean Tem- perature }	54°·1		57°·5		54°·0		56°·0		57°·27	
<i>4th Quarter—</i>										
Births .....	30,064	3'32	30,616	3'41	31,225	3'51	30,538	3'46	30,180	3'45
Deaths .....	17,480	1'93	19,597	2'18	17,916	2'01	17,093	1'94	19,101	2'19
Marriages ..	6,523	0'72	6,662	0'74	7,384	0'83	7,546	0'86	7,191	0'82
Mean Tem- perature }	40°·4		39°·2		42°·8		43°·5		41°·7	
<i>Year—</i>										
Population.	3,627,453		3,593,929		3,560,715		3,527,811		3,495,214	
Births .....	125,736	3'46	126,707	3'53	126,824	3'56	126,749	3'59	123,693	3'54
Deaths .....	73,329	2'02	76,775	2'14	73,946	2'08	74,122	2'10	81,785	2'34
Marriages ..	23,462	0'65	24,333	0'68	25,790	0'72	26,563	0'75	25,921	0'74

II.—*Special Average Table:—Number of Births, Deaths, and Marriages in Scotland and in the Town and Country Districts for each Quarter of the Year ending 31st December, 1879, and their Proportion to the Population; also the Number of Illegitimate Births, and their Proportion to the Total Births.*

Registration Groups of Districts.	Total Births.			Illegitimate Births.			Deaths.			Marriages.		
	Number.	Per Cent.	Ratio. One in every	Number	Per Cent.	Ratio. One in every	Number.	Per Cent.	Ratio. One in every	Number.	Per Cent.	Ratio. One in every
<i>1st Quarter—</i>												
SCOTLAND .....	31,830	3'51	28	2,735	8'6	11'6	22,364	2'47	40	5,956	0'66	152
Principal towns	10,955	3'46	29	911	8'3	12'0	8,125	2'57	39	2,421	0'76	132
Large „	3,894	4'20	24	275	7'1	14'1	2,959	3'19	31	707	0'76	132
Small „	7,463	3'67	27	605	8'1	12'3	4,801	2'36	42	1,288	0'63	159
Mainland rural	8,778	3'35	30	894	10'2	9'8	5,758	2'25	45	1,311	0'50	200
Insular „	740	2'31	43	50	6'8	14'7	721	2'20	44	229	0'71	141
<i>2nd Quarter—</i>												
SCOTLAND .....	32,968	3'64	27	2,606	7'9	12'7	18,784	2'04	49'0	6,050	0'67	149
Principal towns	11,506	3'63	28	959	8'3	12'0	7,007	2'21	45'2	2,392	0'76	132
Large „	4,294	4'63	22	273	6'4	15'6	2,327	2'51	39'8	698	0'75	133
Small „	7,878	3'87	26	561	7'1	14'1	4,230	2'08	48'1	1,280	0'63	159
Mainland rural	8,576	3'37	30	770	9'0	11'1	4,657	1'78	56'2	1,578	0'60	167
Insular „	714	2'23	45	43	6'0	16'7	563	1'76	56'8	102	0'32	313
<i>3rd Quarter—</i>												
SCOTLAND .....	31,436	3'47	29	2,729	8'7	11'5	15,115	1'67	60'0	5,061	0'56	179
Principal towns	10,781	3'40	29	940	8'7	11'5	5,462	1'73	58'0	2,236	0'71	142
Large „	3,980	4'29	23	265	6'7	15'0	1,892	2'04	49'0	645	0'70	144
Small „	7,598	3'74	27	627	8'3	12'1	3,478	1'71	58'5	1,076	0'53	189
Mainland rural	8,177	3'12	32	846	10'3	9'7	3,831	1'46	68'4	1,009	0'39	259
Insular „	900	2'81	36	51	5'7	17'6	452	1'41	70'9	95	0'30	337
<i>4th Quarter—</i>												
SCOTLAND .....	30,064	3'32	30	2,606	8'6	11'5	17,480	1'93	52	6,523	0'72	139
Principal towns	10,285	3'25	31	873	8'5	11'8	6,538	2'06	48	2,420	0'76	131
Large „	3,782	4'08	25	264	7'0	14'3	2,259	2'44	41	724	0'78	128
Small „	7,159	3'52	28	575	8'0	12'5	4,060	2'00	50	1,441	0'71	141
Mainland rural	7,915	3'02	33	839	10'6	9'4	4,198	1'60	62	1,785	0'68	147
Insular „	923	2'88	35	55	6'0	16'8	425	1'33	75	153	0'48	209

*Population of Scotland.*

Population.	Scotland.	Principal Towns.	Large Towns.	Small Towns.	Mainland Rural.	Insular Rural.
By Census of 1871 .....	3,360,018	1,079,211	318,740	767,487	1,062,576	132,004
Estimated to the middle of 1879 .....	3,627,453	1,266,521	371,076	813,645	1,048,013	128,198

III.—*Bastardy Table:—Proportion of ILLEGITIMATE in every Hundred BIRTHS in the Divisions and Counties of SCOTLAND, during each quarter of the Year ending 31st December, 1879; with the Corresponding Figures for 1878 added for Comparison.*

Divisions and Counties.	Per Cent. for the Quarters ending 1879.				Per Cent. for the Quarters ending 1878.			
	31st March.	30th June.	30th Sept.	31st Dec.	31st March.	30th June.	30th Sept.	31st Dec.
SCOTLAND .....	8·6	7·9	8·7	8·67	8·46	7·8	8·5	8·67
<i>Divisions—</i>								
Northern .....	7·0	7·2	5·6	6·1	8·9	9·0	7·1	6·1
North-Western .....	6·6	5·5	6·0	6·0	6·0	6·1	5·9	6·0
North-Eastern .....	15·1	12·9	14·0	14·1	14·9	13·0	14·0	14·1
East Midland .....	8·3	8·8	9·5	9·5	9·0	8·4	8·9	9·5
West Midland .....	6·8	5·8	6·7	7·7	6·4	5·6	6·2	7·7
South-Western .....	7·0	6·6	7·5	7·1	6·9	6·4	7·1	7·1
South-Eastern .....	8·1	7·5	7·5	7·6	7·5	7·6	8·4	7·6
Southern .....	14·6	11·3	13·9	14·3	14·1	11·3	13·4	14·3
<i>Counties—</i>								
Shetland .....	4·0	2·2	3·0	3·9	5·1	6·4	4·1	3·9
Orkney .....	3·6	6·0	5·7	6·0	9·6	7·2	7·6	6·0
Caithness .....	11·4	10·8	7·0	7·6	11·4	13·6	8·3	7·6
Sutherland .....	6·8	6·7	5·9	6·3	7·7	5·4	7·8	6·3
Ross and Cromarty .....	4·0	4·1	5·5	3·9	3·7	5·0	3·6	3·9
Inverness .....	9·2	6·5	6·5	8·0	8·1	7·0	8·1	8·0
Nairn .....	9·3	3·0	9·6	6·1	17·5	6·5	7·4	6·1
Elgin .....	13·8	13·9	11·9	15·6	22·2	14·8	16·2	15·6
Banff .....	18·2	15·0	18·0	14·6	17·3	14·0	16·4	14·6
Aberdeen .....	14·6	13·1	13·1	13·8	13·3	12·8	13·8	13·8
Kincardine .....	16·9	9·5	16·8	15·5	14·4	12·3	10·0	15·5
Forfar .....	9·8	10·2	11·4	11·3	9·3	9·8	9·9	11·3
Perth .....	8·3	9·7	8·5	9·4	9·6	7·3	10·4	9·4
Fife .....	6·9	6·5	7·2	6·6	8·0	6·9	6·9	6·6
Kinross .....	2·7	5·4	10·6	14·6	12·8	11·6	4·8	14·6
Clackmannan .....	7·5	5·6	6·5	7·7	9·5	7·4	7·0	7·7
Stirling .....	6·3	6·0	5·8	8·1	6·1	5·6	7·2	8·1
Dumbarton .....	5·3	5·1	5·9	6·1	5·6	4·8	4·3	6·1
Argyll .....	9·5	6·2	10·0	9·5	8·4	6·9	7·3	9·5
Bute .....	8·0	5·1	4·5	6·8	5·7	5·5	3·9	6·8
Renfrew .....	5·4	6·5	6·5	5·9	5·6	5·1	6·4	5·9
Ayr .....	8·0	7·1	8·1	7·5	6·9	6·7	7·5	7·5
Lanark .....	7·2	6·5	7·6	7·4	7·2	6·6	7·1	7·4
Linlithgow .....	8·4	7·9	8·6	8·2	7·6	9·1	7·9	8·2
Edinburgh .....	8·0	7·4	7·1	7·1	7·4	7·5	8·0	7·1
Haddington .....	7·4	7·8	8·6	5·4	8·5	6·1	10·1	5·4
Berwick .....	9·3	6·9	8·3	10·9	12·6	7·3	13·1	10·9
Peebles .....	12·7	6·0	6·4	9·6	7·5	8·7	4·8	9·6
Selkirk .....	7·5	8·3	10·4	10·1	2·7	7·1	8·0	10·1
Roxburgh .....	12·9	10·0	12·4	12·3	10·4	9·1	8·7	12·3
Dumfries .....	14·6	11·5	14·1	16·6	13·1	12·1	13·8	16·6
Kirkcudbright .....	13·4	11·2	14·9	14·4	16·7	11·2	16·3	14·4
Wigtown .....	17·7	13·1	14·6	12·7	18·0	12·9	16·1	12·7



IV.—*Divisional Table:—MARRIAGES, BIRTHS, and DEATHS Registered in the Year ended 31st December, 1879.*

(Compiled from the Registrar-General's Quarterly Returns.)

1	2	3	4	5	6
DIVISIONS. (Scotland)	AREA in Statute Acres.	POPULATION, 1871. (Persons.)	Marriages.	Births.	Deaths.
		No.	No.	No.	No.
SCOTLAND ..... Totals	19,639,377	3,360,018	23,729	126,850	75,860
I. Northern .....	2,261,622	127,191	598	3,124	2,044
II. North-Western.....	4,739,876	166,351	800	4,279	2,836
III. North-Eastern .....	2,429,594	393,199	2,604	13,694	7,175
IV. East Midland .....	2,790,492	559,676	3,575	19,626	12,098
V. West Midland .....	2,693,176	251,088	1,494	9,081	5,515
VI. South-Western.....	1,462,397	1,183,218	9,646	52,436	31,920
VII. South-Eastern .....	1,192,524	475,523	3,816	18,193	10,317
VIII. Southern .....	2,069,696	203,772	1,196	6,417	3,955

No. III.—GREAT BRITAIN AND IRELAND.

SUMMARY of MARRIAGES, in the Year ended 30th September, 1879; and of BIRTHS and DEATHS, in the Year ended 31st December, 1879.

(Compiled from the Quarterly Returns of the respective Registrars-General.)

COUNTRIES.	[000's omitted.]		Marriages.	Per 1,000 of Popu- lation.	Births.	Per 1,000 of Popu- lation.	Deaths.	Per 1,000 of Popu- lation.
	Area in Statute Acres.	Popu- lation, 1871. (Persons.)						
		No.	No.	Ratio.	No.	Ratio.	No.	Ratio.
England and Wales .....	37,319,	22,712,	183,018	8·1	882,866	38·9	528,194	23·2
Scotland .....	19,639,	3,360,	23,729	7·1	126,850	37·7	75,860	22·6
Ireland .....	20,323,	5,412,	23,824	4·4	135,408	25·0	105,432	19·5
GREAT BRITAIN AND IRELAND }	77,281,	31,484,	230,571	7·3	1,145,124	36·4	709,486	22·2

*Note.*—The numbers against Ireland represent the marriages, births, and deaths that the local registrars have succeeded in recording; but how far the registration approximates to absolute completeness, does not at present appear to be known. It will be seen that the Irish ratios of marriages, births, and deaths are much under those of England and Scotland.—ED. S. J.

Trade of United Kingdom, for the Years 1878-74.—Declared Value of the Total Exports of Foreign and Colonial Produce and Manufactures to each Foreign Country and British Possession.

Merchandise Exported to the following Foreign Countries, &c.	[000's omitted.]				
	1878.	1877.	1876.	1875.	1874.
<b>I.—FOREIGN COUNTRIES.</b>	£	£	£	£	£
Northern Europe; viz., Russia, Sweden, Norway, Denmark, & Iceland, & Heligoland } Central Europe; viz., Germany, Holland and Belgium } Western Europe; viz., France, Portugal, (with Azores, Madeira, &c.), and Spain, (with Gibraltar and Canaries) }	4,799,	4,587,	4,951,	5,478,	5,116,
	20,915,	22,182,	23,543,	25,842,	24,016,
	12,973,	12,789,	14,343,	13,509,	14,560,
Southern Europe; viz., Italy, Austrian Empire, Greece, Ionian Islands, and Malta } Levant; viz., Turkey, with Wallachia and Moldavia, Syria and Palestine, and Egypt }	1,766,	1,773,	2,066,	2,056,	2,105,
	737,	474,	593,	655,	668,
Northern Africa; viz., Tripoli, Tunis, Algeria, and Morocco }	178,	77,	76,	86,	93,
Western Africa }	257,	299,	270,	259,	271,
Eastern Africa; with African Ports on Red Sea, Aden, Arabia, Persia, Bourbon, and Kooria Moorla Islands }	—	—	—	—	29,
Indian Seas, Siam, Sumatra, Java, Philippines; other Islands }	328,	307,	183,	162,	34,
South Sea Islands }	—	—	—	—	—
China, including Hong Kong }	382,	344,	290,	407,	441,
United States of America }	2,980,	3,509,	3,393,	3,194,	3,996,
Mexico and Central America }	121,	119,	97,	125,	216,
Foreign West Indies and Hayti }	689,	497,	595,	406,	490,
South America (Northern), New Granada, Venezuela and Ecuador }	37,	33,	41,	58,	45,
„ (Pacific), Peru, Bolivia, Chili, and Patagonia }	323,	264,	297,	360,	262,
„ (Atlantic), Brazil, Uruguay, and Buenos Ayres }	735,	593,	406,	452,	512,
Other countries (unenumerated) }	109,	150,	136,	79,	438,
<i>Total—Foreign Countries.....</i>	47,329,	47,997,	51,280,	53,128,	52,995,
<b>II.—BRITISH POSSESSIONS:</b>					
British India, Ceylon, and Singapore }	1,536,	1,475,	1,433,	1,536,	1,437,
Austral. Cols.—New South Wales and Victoria, So. Aus., W. Aus., Tasm., and N. Zealand }	1,952,	2,218,	1,788,	1,733,	1,606,
British North America }	597,	642,	668,	646,	879,
„ W. Indies with Btsh. Guiana & Honduras }	306,	328,	347,	361,	325,
Cape and Natal }	546,	387,	315,	441,	400,
Brit. W. Co. of Af., Ascension and St. Helena }	99,	82,	84,	94,	41,
Mauritius }	22,	106,	22,	26,	69,
Channel Islands }	198,	184,	170,	150,	99,
Other possessions }	50,	34,	30,	31,	241,
<i>Total—British Possessions .....</i>	5,306,	5,456,	4,857,	5,018,	5,097,
<i>General Total .....</i>	£ 52,635,	53,453,	56,137,	58,146,	58,092,

Trade of United Kingdom, 1879-78-77.—Distribution of Exports\* from United Kingdom, according to their Declared Real Value; and the Declared Real Value (Ex-duty) of Imports at Port of Entry, and therefore including Freight and Importer's Profit.

Merchandise (excluding Gold and Silver) Imported from, and Exported to, the following Foreign Countries, &c.	[000's omitted.]					
	1879.		1878.		1877.	
	Imports from	Exports to	Imports from	Exports to	Imports from	Exports to
I.—FOREIGN COUNTRIES:	£	£	£	£	£	£
Northern Europe; viz., Russia, Sweden, Norway, Denmark & Iceland, & Heligoland	28,916,	11,814,	31,427,	10,859,	36,510,	10,172,
Central Europe; viz., Germany, Holland, and Belgium	54,362,	33,078,	57,134,	34,275,	59,106,	34,515,
Western Europe; viz., France, Portugal (with Azores, Madeira, &c.), and Spain (with Gibraltar and Canaries)	50,589,	20,804,	54,326,	21,128,	60,829,	21,355,
Southern Europe; viz., Italy, Austrian Empire, Greece, Ionian Islands, and Malta	8,306,	8,522,	6,825,	8,251,	8,350,	8,946,
Levant; viz., Turkey, with Wallachia and Moldavia, Syria and Palestine, and Egypt	12,267,	9,325,	11,803,	10,841,	18,258,	8,083,
Northern Africa; viz., Tripoli, Tunis, Algeria and Moreco	1,035,	502,	1,089,	406,	1,874,	700,
Western Africa	1,436,	836,	1,269,	1,174,	1,525,	1,175,
Eastern Africa; with African Ports on Red Sea, Aden, Arabia, Persia, Bourbon, and Kooria Moorla Islands	454,	1,066,	538,	455,	543,	464,
Indian Seas, Siam, Sumatra, Java, Philippines; other Islands	3,320,	2,297,	3,111,	2,563,	3,755,	3,394,
South Sea Islands	167,	168,	116,	81,	82,	78,
China and Japan, including Hong Kong	12,844,	10,238,	15,426,	9,212,	16,048,	10,119,
United States of America	90,896,	20,595,	89,071,	14,621,	77,669,	16,313,
Mexico and Central America	1,965,	1,407,	1,500,	1,503,	2,167,	1,925,
Foreign West Indies, Hayti, &c.	3,294,	2,525,	2,217,	2,836,	2,099,	3,169,
South America (Northern), New Granada, Venezuela, and Ecuador	1,562,	1,624,	1,164,	1,705,	722,	1,783,
" (Pacific), Peru, Bolivia, Chili, and Patagonia	7,379,	1,749,	7,957,	2,634,	8,321,	2,864,
" (Atlantic) Brazil, Uruguay, and Buenos Ayres	5,974,	8,661,	6,375,	8,891,	8,775,	9,134,
Whale Fisheries; Grmnd., Davis' Straits, Southn. Whale Fishery, & Falkland Islands	153,	12,	170,	22,	177,	21,
Total—Foreign Countries	284,919,	135,223,	291,518,	131,457,	306,810,	134,210,
II.—BRITISH POSSESSIONS:						
British India, Ceylon, and Singapore	31,024,	24,201,	32,975,	25,853,	38,396,	28,657,
Austral. Cols.—N. So. W., Victoria & Queensld.	13,638,	10,080,	13,029,	12,480,	14,682,	13,209,
" " So. Aus., W. Aus., Tasm., and N. Zealand	8,291,	6,178,	7,795,	7,089,	7,031,	6,072,
British North America	10,569,	5,455,	9,441,	6,412,	12,010,	7,585,
" W. Indies with Btsh. Guiana & Honduras	7,303,	2,812,	6,334,	2,761,	7,117,	3,008,
Cape and Natal	4,570,	5,844,	4,383,	4,911,	4,275,	4,114,
Brt. W. Co. of Af., Ascension and St. Helena	586,	767,	624,	897,	772,	833,
Mauritius	642,	345,	889,	409,	1,918,	494,
Channel Islands	738,	599,	946,	535,	938,	549,
Total—British Possessions	77,361,	56,281,	76,416,	61,347,	87,139,	64,521,
General Total	£362,280,	£191,504,	£367,934,	£192,804,	£393,949,	£198,731,

\* i.e., British and Irish produce and manufactures.

IMPORTS.—(United Kingdom.)—For the Years 1879-78-77-76-75.—Declared Real Value (*Ex-duty*), at Port of Entry (and therefore including Freight and Importer's Profit), of Articles of Foreign and Colonial Merchandise Imported into the United Kingdom.

[000's omitted.]

FOREIGN ARTICLES IMPORTED.		1879.	1878.	1877.	1876.	1875.
		£	£	£	£	£
RAW MATLS.— <i>Textile</i> , &c.	Cotton Wool ....	36,279,	33,524,	35,489,	40,347,	46,320,
	Wool (Sheep's) ..	24,930,	24,589,	26,310,	24,980,	22,889,
	Silk* .....	16,825,	16,867,	17,733,	18,186,	15,227,
	Flax .....	3,581,	3,483,	5,055,	3,537,	4,380,
	Hemp .....	4,943,	5,156,	4,973,	4,755,	4,822,
	Indigo .....	1,901,	1,583,	1,636,	2,130,	1,621,
		88,459,	85,202,	91,196,	93,935,	95,259,
" " <i>Various</i> .	Hides .....	5,109,	6,266,	6,495,	6,273,	7,005,
	Oils .....	3,477,	3,184,	4,200,	4,786,	5,368,
	Metals .....	10,619,	10,632,	11,569,	10,252,	12,685,
	Tallow .....	2,100,	1,811,	2,570,	2,874,	2,037,
	Timber .....	10,726,	13,915,	20,191,	19,025,	15,362,
		32,031,	35,808,	45,025,	43,210,	42,457,
" " <i>Agricul.</i>	Guano .....	704,	1,805,	1,667,	2,462,	1,292,
	Seeds .....	7,098,	8,690,	9,139,	8,970,	8,789,
		7,802,	10,495,	10,806,	11,432,	10,081,
TROPICAL, &c., PRODUCE.	Tea .....	11,373,	13,097,	12,482,	12,813,	14,167,
	Coffee .....	7,324,	6,093,	7,852,	6,413,	7,605,
	Sugar & Molasses	22,351,	21,107,	27,277,	20,620,	21,917,
	Tobacco .....	1,975,	3,718,	3,539,	3,946,	2,987,
	Rice .....	3,481,	3,192,	3,507,	2,927,	2,991,
	Fruits .....	3,794,	3,509,	4,334,	3,839,	3,789,
	Wines .....	5,380,	6,003,	7,156,	7,020,	6,821,
	Spirits .....	2,895,	2,209,	2,256,	3,963,	2,885,
		58,573,	58,928,	68,403,	61,541,	63,162,
FOOD .....	Grain and Meal.	60,596,	58,373,	63,210,	51,550,	52,714,
	Provisions .....	35,901,	35,951,	33,241,	32,837,	25,752,
		96,497,	94,324,	96,451,	84,387,	78,466,
Remainder of Enumerated Articles ....		41,955,	43,253,	42,560,	41,199,	45,716,
TOTAL ENUMERATED IMPORTS ....		325,317,	328,010,	354,441,	335,704,	335,141,
Add for UNENUMERATED IMPORTS (say)		36,810,	38,050,	39,500,	38,300,	38,800,
TOTAL IMPORTS .....		362,127,	366,060,	393,941,	374,004,	373,941,

\* "Silk," inclusive of manufactured silk, "not made up."



EXPORTS.—(United Kingdom.)—For the Years 1879-78-77-76-75.—Declared Real Value, at Port of Shipment, of Articles of BRITISH and IRISH Produce and Manufactures Exported from the United Kingdom.

[000's omitted.]

BRITISH PRODUCE, &c., EXPORTED.	1879.	1878.	1877.	1876.	1875.
	£	£	£	£	£
MANFES.— <i>Textile.</i> Cotton Manufactures..	51,843,	52,903,	56,954,	54,851,	58,565,
"    Yarn .....	12,103,	13,006,	12,209,	12,783,	13,170,
Woolen Manufactures	15,851,	16,723,	17,335,	18,620,	21,649,
"    Yarn .....	3,714,	3,910,	3,609,	4,417,	5,102,
Silk Manufactures.....	1,696,	1,921,	1,707,	1,769,	1,738,
"    Yarn .....	694,	564,	572,	1,073,	878,
Linen Manufactures ....	5,474,	5,526,	5,830,	5,621,	7,271,
"    Yarn .....	1,075,	1,213,	1,291,	1,460,	1,855,
	92,450,	95,766,	99,507,	100,594,	110,228,
" <i>Sewed.</i> Apparel .....	3,198,	3,155,	2,833,	2,962,	3,185,
Haberdy. and Mllnry.	3,487,	3,966,	3,803,	3,771,	4,922,
	6,685,	7,121,	6,636,	6,733,	8,107,
METALS, &c. .... Hardware .....	3,019,	3,290,	3,336,	3,481,	4,265,
Machinery .....	7,283,	7,490,	6,683,	7,198,	9,099,
Iron .....	19,439,	18,394,	20,095,	20,731,	25,781,
Copper and Brass.....	3,380,	3,522,	3,503,	3,401,	3,730,
Lead and Tin .....	1,019,	1,057,	1,363,	1,202,	1,300,
Coals and Culm .....	7,202,	7,321,	7,829,	8,901,	9,646,
	41,342,	41,074,	42,809,	44,914,	53,821,
Ceramic Manufets. Earthenware and Glass	2,526,	2,450,	2,614,	2,577,	2,812,
Indigenous Mnfrs. Beer and Ale.....	1,759,	1,762,	1,895,	1,922,	2,090,
<i>and Products.</i> Butter .....	235,	243,	247,	210,	240,
Cheese .....	55,	66,	72,	70,	88,
Candles .....	136,	170,	196,	151,	177,
Salt.....	552,	503,	463,	529,	676,
Spirits .....	454,	390,	373,	312,	277,
Soda .....	—	—	—	—	2,300,
	3,191,	3,134,	3,246,	3,194,	5,848,
Various Manufets. Books, Printed .....	953,	891,	896,	877,	915,
Furniture .....	—	—	—	—	—
Leather Manufactures	2,058,	2,003,	1,995,	3,343,	2,385,
Soap .....	433,	405,	365,	312,	311,
Plate and Watches ....	213,	221,	218,	247,	304,
Stationery .....	664,	647,	655,	659,	684,
	4,321,	4,167,	4,129,	5,438,	4,599,
Remainder of Enumerated Articles .....	22,936,	20,953,	22,509,	19,796,	20,880,
Unenumerated Articles.....	18,053,	18,139,	17,281,	17,330,	17,200,
TOTAL EXPORTS.....	191,504,	192,804,	198,731,	200,576,	223,494,

SHIPPING.—(United Kingdom.)—Account of Tonnage of Vessels Entered and Cleared with Cargoes, from and to Various Countries, during the Years ended December, 1879-78-77.

Countries from whence Entered and to which Cleared.	Total British and Foreign.					
	1879.		1878.		1877.	
	Entered.	Cleared.	Entered.	Cleared.	Entered.	Cleared.
<b>FOREIGN COUNTRIES.</b>	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Russia { Northern ports ....	1,161,245	1,066,649	1,389,143	983,599	1,804,220	938,435
{ Southern „ ....	284,747	151,107	364,882	237,811	156,737	56,542
Sweden .....	1,143,643	632,399	1,135,394	645,757	1,324,690	746,935
Norway .....	665,034	442,179	755,235	425,973	775,660	463,323
Denmark .....	239,776	640,744	226,282	609,992	202,402	658,951
Germany .....	1,653,266	2,361,798	1,709,058	2,277,658	1,705,672	2,317,399
Holland .....	1,250,035	1,360,310	1,226,814	1,361,961	1,206,035	1,322,876
Belgium .....	828,024	872,170	875,987	902,760	882,532	932,156
France .....	1,843,596	3,230,265	1,952,058	3,120,192	1,967,674	2,981,046
Spain .....	1,106,416	723,797	1,155,908	665,720	1,184,911	696,039
Portugal .....	183,603	351,700	219,861	316,824	219,158	314,078
Italy .....	252,477	1,029,891	254,066	894,049	336,877	869,110
Austrian territories .....	38,767	80,296	39,570	85,108	37,869	88,610
Greece .....	74,442	76,749	64,581	72,099	79,334	64,445
Turkey .....	164,523	264,453	301,974	385,180	338,543	221,353
Roumania .....	79,726	23,751	—	—	—	—
Egypt .....	281,056	430,888	201,656	394,598	417,790	470,357
United States of America ...	4,981,317	3,038,411	4,718,304	2,369,354	4,070,538	2,029,537
Mexico, Foreign West Indies, and Central America .....	317,892	464,474	223,439	412,656	198,730	413,946
Brazil .....	209,025	467,276	199,069	491,033	230,793	474,667
Peru .....	113,543	79,680	239,363	69,667	215,438	85,543
Chili .....	127,832	156,702	32,560	176,520	52,156	186,439
China .....	138,513	13,411	170,288	20,281	150,222	28,887
Other countries .....	608,344	711,177	554,099	625,858	649,728	638,132
<b>Total, Foreign Countries</b>	<b>17,746,842</b>	<b>18,670,277</b>	<b>18,009,591</b>	<b>17,544,650</b>	<b>18,207,709</b>	<b>16,998,812</b>
<b>BRITISH POSSESSIONS.</b>						
North American Colonies ...	1,249,901	715,169	1,248,277	686,395	1,641,153	707,982
East Indies, including Ceylon, Singapore, and Mauritius .....	949,453	1,530,654	1,040,738	1,416,506	1,277,962	1,698,887
Australia and New Zealand	357,339	549,402	309,906	597,995	269,018	598,391
West Indies .....	206,795	179,563	182,699	160,577	173,338	160,589
Channel Islands .....	296,444	199,134	288,739	182,052	289,199	174,691
Other possessions .....	292,570	1,005,158	238,296	993,513	273,097	857,668
<b>Total, British Possessions</b>	<b>3,352,502</b>	<b>4,179,080</b>	<b>3,308,655</b>	<b>4,037,038</b>	<b>3,923,767</b>	<b>4,198,208</b>
<b>TOTAL FOREIGN COUNTRIES AND BRITISH POSSESSIONS.</b>						
Years { 1879 .....	21,099,344	22,849,357	—	—	—	—
ended { '78 .....	—	—	21,318,246	21,581,688	—	—
December, { '77 .....	—	—	—	—	22,131,476	21,197,025

**GOLD AND SILVER BULLION AND SPECIE.**—(United Kingdom.)  
*—Declared Real Value of, IMPORTED AND EXPORTED for the Years*  
**1879-78-77.**

[000's omitted.]

Countries.	1879.		1878.		1877.	
	Gold.	Silver.	Gold.	Silver.	Gold.	Silver.
<b>Imported from—</b>	£	£	£	£	£	£
Australia .....	3,152,	110,	5,681,	21,	6,655,	38,
So. Amca., including	1,874,	3,767,	1,591,	3,548,	1,172,	3,394,
Mexico and W. Indies .....						
United States .....	388,	2,596,	866,	1,616,	2,062,	2,616,
	4,914,	6,473,	8,138,	5,185,	9,889,	6,048,
France .....	2,903,	2,347,	5,908,	1,741,	873,	1,521,
Germany, Holl. & Belg. ....	853,	833,	2,019,	4,100,	1,036,	13,855,
Prtgl., Spain, and Gbrltr. ....	563,	274,	376,	77,	501,	46,
Mlta. and Egypt .....	409,	22,	1,578,	43,	317,	107,
China, including Hong Kong .....	809,	349,	430,	1,	187,	1,
West Coast of Africa	115,	62,	122,	41,	121,	11,
All other Countries ...	2,765,	374,	2,301,	361,	2,528,	122,
<b>Totals Imported ...</b>	<b>13,331,</b>	<b>10,734,</b>	<b>20,872,</b>	<b>11,549,</b>	<b>15,452,</b>	<b>21,711,</b>
<b>Exported to—</b>						
France .....	696,	723,	4,599,	2,191,	6,147,	768,
Germany, Holl. & Belg. ....	3,537,	1,871,	5,324,	1,645,	8,404,	166,
Prtgl., Spain, and Gbrltr. ....	859,	279,	1,316,	729,	744,	1,566,
	5,092,	2,873,	11,239,	4,565,	15,295,	2,500,
Ind. and China .....	219,	6,574,*	233,	5,840,	609,	16,361,
United States .....	6,949,	614,	829,	1,083,	1,168,	298,
South Africa .....	1,730,	24,	347,	—	485,	7,
So. Amca., including Mexico and W. Indies .....	1,072,	596,	809,	39,	683,	59,
All other Countries ...	2,517,	350,	1,512,	191,	2,121,	212,
<b>Totals Exported ...</b>	<b>17,579,</b>	<b>11,031,</b>	<b>14,969,</b>	<b>11,718,</b>	<b>20,361,</b>	<b>19,437,</b>
Excess of imports ...	—	—	5,903,	—	—	2,274,
„ exports ...	4,248,	297,	—	169,	4,909,	—

\* This entry is now shown direct, instead of to Egypt as formerly.

**BRITISH CORN.—*Gazette Average Prices (ENGLAND AND WALES)***  
*Weekly for 1879.*

[This Table is communicated by the Statistical and Corn Department, Board of Trade.]

Weeks ended on Saturday.	Weekly Average. (Per Imperial Quarter.)			Weeks ended on Saturday.	Weekly Average. (Per Imperial Quarter.)		
	Wheat.	Barley.	Oats.		Wheat.	Barley.	Oats.
1879.	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	1879.	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
January 4 ....	39 7	38 10	20 3	July 5 .....	42 4	24 6	24 2
„ 11 ....	39 7	36 11	20 1	„ 12 .....	43 4	24 —	21 —
„ 18 ....	38 11	36 11	19 8	„ 19 .....	44 10	28 —	22 —
„ 25 ....	39 1	37 5	20 1	„ 26 .....	47 7	29 1	24 4
February 1 ....	38 4	36 9	19 5	August 2 ....	49 3	28 6	21 8
„ 8 ....	38 1	35 7	20 —	„ 9 ....	49 7	26 11	24 2
„ 15 ....	38 1	35 5	19 2	„ 16 ....	49 5	31 —	23 6
„ 22 ....	37 7	34 10	20 3	„ 23 ....	49 3	31 1	24 10
March 1.....	38 —	33 10	19 7	„ 30 ....	48 1	29 7	24 9
„ 8.....	39 1	34 4	20 5	September 6	48 2	32 11	26 7
„ 15.....	39 7	34 1	20 9	„ 13	47 11	36 8	25 7
„ 22.....	40 8	33 9	21 1	„ 20	47 4	43 2	22 11
„ 29.....	40 8	33 —	20 8	„ 27	46 5	41 11	23 11
April 5 .....	40 11	32 6	21 1	October 4 ....	47 1	40 7	23 4
„ 12 .....	41 —	32 3	20 8	„ 11 ....	48 8	40 9	22 2
„ 19 .....	41 2	30 11	20 7	„ 18 ....	49 9	40 10	22 2
„ 26 .....	40 11	31 —	20 11	„ 25 ....	49 10	40 10	22 3
May 3.....	40 9	30 1	21 9	November 1	50 4	41 1	22 1
„ 10.....	40 9	30 9	21 5	„ 8	50 5	40 8	21 6
„ 17.....	40 8	30 1	21 11	„ 15	48 9	40 1	21 4
„ 24.....	41 4	28 10	22 6	„ 22	47 10	39 8	21 6
„ 31.....	41 5	28 6	21 11	„ 29	46 7	38 10	20 6
June 7 .....	41 7	26 6	21 8	December 6	46 7	38 4	21 4
„ 14 .....	41 4	28 2	22 3	„ 13	46 2	38 5	21 4
„ 21 .....	41 8	25 11	23 5	„ 20	46 6	38 7	20 11
„ 28 .....	42 6	28 1	22 1	„ 27	47 1	37 11	20 10



BRITISH CORN.—*Gazette Average Prices (ENGLAND AND WALES),  
Summary of, for 1879, with those for 1878, added for Comparison.*

[This Table is communicated by the Statistical and Corn Department, Board of Trade.]

Average for	Per Imperial Quarter, 1879.						Per Imperial Quarter, 1878.					
	Wheat.		Barley.		Oats.		Wheat.		Barley.		Oats.	
	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
January.....	39	3	37	6	20	—	51	11	43	11	23	11
February .....	38	—	35	7	19	8	51	4	44	2	24	3
March .....	39	7	33	9	20	6	49	7	42	5	24	—
<i>First quarter ....</i>	39	—	35	6	20	1	50	10	43	5	24	1
April .....	41	—	31	8	20	9	51	3	41	11	25	4
May .....	40	11	29	7	21	10	51	11	39	10	26	—
June .....	41	9	27	2	22	4	48	—	36	11	26	2
<i>Second quarter....</i>	41	2	29	6	21	8	50	2	39	4	25	10
July .....	44	6	26	4	22	10	44	11	37	5	27	6
August .....	49	1	29	5	23	9	44	9	36	—	26	2
September.....	47	5	38	8	24	9	43	8	41	7	24	—
<i>Third quarter ....</i>	47	2	31	4	23	9	44	6	38	4	25	11
October .....	48	10	40	9	22	5	39	7	40	4	22	—
November .....	48	9	40	—	21	4	40	4	39	8	21	10
December .....	46	7	38	3	21	1	40	3	38	11	21	—
<i>Fourth quarter....</i>	48	1	39	8	21	7	40	2	39	7	21	8
THE YEAR .....	43	10	34	—	21	9	46	5	40	2	24	4

## REVENUE OF THE UNITED KINGDOM.

*Net Produce in QUARTERS and YEARS ended 31st DEC., 1879-78-77-76.*

[000's omitted.]

QUARTERS, ended 31st Dec.	1879.	1878.	1879.		Corresponding Quarters.	
			Less.	More.	1877.	1876.
	£	£	£	£	£	£
Customs .....	5,356,	5,484,	128,	—	5,386,	5,433,
Excise .....	6,460,	6,990,	530,	—	6,855,	7,053,
Stamps .....	2,725,	2,628,	—	97,	2,735,	2,692,
Taxes .....	26,	26,	—	—	46,	39,
Post Office .....	1,630,	1,554,	—	76,	1,577,	1,552,
Telegraph Service ....	365,	325,	—	40,	320,	330,
	16,562,	17,007,	658,	213,	16,919,	17,099,
Property Tax .....	486,	440,	—	46,	342,	281,
	17,048,	17,447,	658,	259,	17,261,	17,380,
Crown Lands .....	135,	141,	6,	—	141,	141,
Interest on Advances	326,	383,	57,	—	337,	276,
Miscellaneous .....	1,108,	1,098,	—	10,	644,	880,
<i>Totals</i> .....	18,617,	19,069,	721,	269,	18,383,	18,677,
			NET DECR. £452,			

YEARS, ended 31st Dec.	1879.	1878.	1879.		Corresponding Years.	
			Less.	More.	1877.	1876.
	£	£	£	£	£	£
Customs .....	19,750,	20,165,	415,	—	19,762,	20,075,
Excise .....	26,277,	27,372,	1,095,	—	27,368,	27,853,
Stamps .....	11,019,	10,652,	—	367,	10,968,	10,946,
Taxes .....	2,644,	2,655,	11,	—	2,636,	2,488,
Post Office .....	6,319,	6,180,	—	139,	6,133,	5,970,
Telegraph Service ....	1,375,	1,330,	—	45,	1,320,	1,295,
	67,384,	68,354,	1,521,	551,	68,187,	68,627,
Property Tax .....	9,485,	6,031,	—	3,454,	5,736,	4,095,
	76,869,	74,385,	1,521,	4,005,	73,923,	72,722,
Crown Lands .....	399,	410,	11,	—	410,	405,
Interest on Advances	1,127,	1,047,	—	80,	954,	797,
Miscellaneous .....	4,272,	4,642,	370,	—	3,393,	3,555,
<i>Totals</i> .....	82,667,	80,484,	1,902,	4,085,	78,680,	77,479,
			NET INCR. £2,183,			

## LONDON CLEARING; CIRCULATION, PRIVATE AND PROVINCIAL.

*The London Clearing, and the Average Amount of Promissory Notes in Circulation in ENGLAND and WALES on Saturday in each Week during the Year 1879; and in SCOTLAND and IRELAND, at the Dates, as under.*

[0,000's omitted.]

ENGLAND AND WALES.					SCOTLAND.				IRELAND.		
DATES.	London: Cleared in each Week ended Wednesday.*	Private Banks. (Fixed Issues, 3,72).	Joint Stock Banks. (Fixed Issues, 2,49).	TOTAL. (Fixed Issues, 6,21).	Weeks ended	£5 and upwards.	Under £5.	TOTAL. (Fixed Issues, 2,68).	£5 and upwards	Under £5.	TOTAL. (Fixed Issues, 6,35).
1879.	£	£	£	£	1879.	£	£	£	£	£	£
Jan. 4.....	88,89	2,09	1,84	3,93							
" 11.....	89,55	2,10	1,86	3,96							
" 18.....	97,70	2,07	1,83	3,90	Jan. 18...	2,05	3,58	5,63	3,70	2,98	6,68
" 25.....	92,48	2,02†	1,79	3,81							
Feb. 1.....	77,38	1,97	1,76	3,73							
" 8.....	111,12	1,92	1,74	3,66							
" 15.....	76,83	1,87	1,71	3,58	Feb. 15...	1,93	3,36	5,29	3,57	2,84	6,41
" 22.....	109,06	1,84	1,70	3,54							
Mar. 1.....	71,53	1,83	1,70	3,53							
" 8.....	125,04	1,83	1,70	3,53							
" 15.....	77,56	1,81	1,71	3,52	Mar. 15...	1,86	3,31	5,17	3,55	2,71	6,26
" 22.....	102,32	1,83	1,74	3,57							
" 29.....	75,43	1,88	1,80	3,68							
April 5.....	103,55	1,97	1,88	3,85							
" 12.....	99,71	2,02	1,91	3,93	April 12...	1,86	3,33	5,19	3,62	2,67	6,29
" 19.....	64,68	2,03	1,92	3,95							
" 26.....	109,59	2,01	1,90	3,91							
May 3.....	104,75	2,01	1,90	3,91							
" 10.....	96,52	1,98	1,90	3,88	May 10...	2,00	3,46	5,46	3,67	2,65	6,32
" 17.....	84,26	1,97‡	1,89	3,86							
" 24.....	109,06	1,91	1,82	3,73							
" 31.....	77,94	1,86	1,78	3,64							
June 7.....	103,25	1,84	1,74	3,58	June 7...	2,50	3,90	6,40	3,45	2,55	6,00
" 14.....	81,49	1,81§	1,71	3,52							
" 21.....	104,70	1,79	1,68	3,47							
" 28.....	80,20	1,80	1,68	3,48							
July 5.....	115,56	1,83	1,70	3,53	July 5...	2,08	3,60	5,68	3,22	2,48	5,70
" 12.....	93,60	1,85	1,71	3,56							
" 19.....	105,00	1,84	1,68	3,52							
" 26.....	83,83	1,79	1,64	3,43							
Aug. 2.....	73,68	1,76	1,63	3,39	Aug. 2...	1,89	3,53	5,42	3,18	2,42	5,60
" 9.....	102,47	1,74	1,63	3,37							
" 16.....	78,75	1,72	1,60	3,32							
" 23.....	95,55	1,69	1,58	3,27							
" 30.....	68,42	1,67	1,56	3,23	" 30...	1,77	3,42	5,19	3,06	2,35	5,41
Sept. 6.....	102,81	1,67	1,58	3,25							
" 13.....	74,41	1,66	1,57	3,23							
" 20.....	94,60	1,67	1,58	3,25							
" 27.....	69,75	1,68	1,58	3,26	Sept. 27...	1,76	3,45	5,21	3,06	2,42	5,48
Oct. 4.....	102,92	1,79	1,64	3,43							
" 11.....	86,53	1,85	1,69	3,54							
" 18.....	103,03	1,85	1,72	3,57							
" 25.....	88,60	1,83	1,72	3,55	Oct. 25...	1,80	3,53	5,33	3,35	2,68	6,03
Nov. 1.....	80,78	1,84	1,73	3,57							
" 8.....	121,19	1,86	1,76	3,62							
" 15.....	85,21	1,85	1,77	3,62							
" 22.....	115,97	1,84	1,76	3,60	Nov. 22...	2,12	3,87	5,99	3,49	2,89	6,38
" 29.....	77,41	1,84	1,77¶	3,61							
Dec. 6.....	123,56	1,80	1,75	3,55							
" 13.....	86,42	1,78	1,71	3,49							
" 20.....	122,33	1,78	1,72	3,50	Dec. 20...	2,04	3,79	5,83	3,40	2,88	6,28
" 27.....	96,08	1,80	1,73	3,53							

\* The Wednesdays preceding the Saturdays.

† Fixed Issues, 3,66.

‡ Fixed Issues, 3,64.

§ Fixed Issues, 3,60.

|| Fixed Issues, 3,58.

¶ Fixed Issues, 2,46.

## BANK OF ENGLAND.

Pursuant to the Act 7th and 8th Victoria, cap. 32 (1844)

[0,000's omitted.]

1	2	3	4	5	6	7
ISSUE DEPARTMENT.					COLLATERAL COLUMNS.	
Liabilities.	DATES. (Wedn'sdays.)	Assets.			Notes in Hands of Public. (Col. 1 minus col. 16.)	Minimum Rates of Discount at Bank of England.
Notes Issued.		Government Debt.	Other Securities.	Gold Coin and Bullion.		
£ Mlns.	1879.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	1879. Per cent.
42,19	Jan. 1 .....	11,02	3,98	27,19	32,78	
42,73	" 8 .....	11,02	3,98	27,73	33,04	
43,21	" 15 .....	11,02	3,98	28,21	32,66	15 Jan. .... 4
43,67	" 22 .....	11,02	3,98	28,67	33,24	
43,95	" 29 .....	11,02	3,98	28,95	32,15	29 " ..... 3
44,37	Feb. 5 .....	11,02	3,98	29,37	31,46	
44,94	" 12 .....	11,02	3,98	29,94	30,43	
45,61	" 19 .....	11,02	3,98	30,61	29,86	
45,87	" 26 .....	11,02	3,98	30,87	29,38	
46,28	Mar. 5 .....	11,02	3,98	31,28	29,33	
46,74	" 12 .....	11,02	3,98	31,74	28,84	12 Mar. .... 2½
47,15	" 19 .....	11,02	3,98	32,15	28,50	
47,82	" 26 .....	11,02	3,98	32,82	28,89	
47,75	April 2 .....	11,02	3,98	32,75	29,63	
47,19	" 9 .....	11,02	3,98	32,19	29,83	
47,22	" 16 .....	11,02	3,98	32,22	29,42	9 April. .... 2
47,54	" 23 .....	11,02	3,98	32,54	29,04	
47,61	" 30 .....	11,02	3,98	32,61	29,37	
47,50	May 7 .....	11,02	3,98	32,50	29,43	
47,26	" 14 .....	11,02	3,98	32,26	29,37	
46,97	" 21 .....	11,02	3,98	31,97	29,07	
47,05	" 28 .....	11,02	3,98	32,05	28,88	
47,05	June 4 .....	11,02	3,98	32,05	29,39	
47,27	" 11 .....	11,02	3,98	32,27	28,90	
48,01	" 18 .....	11,02	3,98	33,01	28,64	
48,74	" 25 .....	11,02	3,98	33,74	28,89	
49,02	July 2 .....	11,02	3,98	34,02	29,53	
48,97	" 9 .....	11,02	3,98	33,97	29,48	
49,14	" 16 .....	11,02	3,98	34,14	29,33	
49,15	" 23 .....	11,02	3,98	34,15	29,29	
49,57	" 30 .....	11,02	3,98	34,57	29,32	
49,21	Aug. 6 .....	11,02	3,98	34,21	29,66	
49,19	" 13 .....	11,02	3,98	34,19	29,24	
49,18	" 20 .....	11,02	3,98	34,18	28,83	
48,68	" 27 .....	11,02	3,98	33,68	28,54	
48,46	Sept. 3 .....	11,02	3,98	33,46	28,95	
48,59	" 10 .....	11,02	3,98	33,59	28,36	
49,02	" 17 .....	11,02	3,98	34,02	28,09	
48,88	" 24 .....	11,02	3,98	33,88	27,72	
48,73	Oct. 1 .....	11,02	3,98	33,73	28,09	
47,99	" 8 .....	11,02	3,98	32,99	28,76	
47,25	" 15 .....	11,02	3,98	32,25	28,84	
46,00	" 22 .....	11,02	3,98	31,00	28,53	
44,93	" 29 .....	11,02	3,98	29,93	28,27	
44,08	Nov. 5 .....	11,02	3,98	29,08	28,53	5 Nov. .... 3
43,18	" 12 .....	11,02	3,98	28,18	28,18	
42,75	" 19 .....	11,02	3,98	27,75	27,76	
42,75	" 26 .....	11,02	3,98	27,75	27,78	
41,69	Dec. 3 .....	11,02	3,98	26,69	27,59	
41,49	" 10 .....	11,02	3,98	26,49	27,06	
41,44	" 17 .....	11,02	3,98	26,44	26,76	
41,25	" 24 .....	11,02	3,98	26,25	27,23	
41,38	" 31 .....	11,02	3,98	26,38	27,63	



## —WEEKLY RETURN.

for Wednesday in each Week, during the Year 1879.

[0,000's omitted.]

8	9	10	11	12	13	14	15	16	17	18
BANKING DEPARTMENT.										
Liabilities.					DATES. (Wedn'sdys.)	Assets.				Totals of Liabili- ties and Assets.
Capital and Rest.		Deposits.		Seven Day and other Bills.		Securities.		Reserve.		
Capital.	Rest.	Public.	Private.			Government.	Other.	Notes.	Gold and Silver Coin.	
£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	1879.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.
14,55	3,31	4,94	31,12	,22	Jan. 1 .....	14,72	29,12	9,41	,89	54,14
14,55	3,48	4,75	32,54	,27	" 8 .....	18,22	26,76	9,69	,92	55,59
14,55	3,52	4,41	32,84	,29	" 15 .....	18,94	25,15	10,55	,97	55,61
14,55	3,53	3,97	32,60	,28	" 22 .....	17,09	26,37	10,43	1,04	54,93
14,55	3,54	3,80	31,03	,29	" 29 .....	15,72	24,64	11,80	1,05	53,21
14,55	3,58	5,92	29,03	,30	Feb. 5 .....	15,44	23,99	12,91	1,04	53,38
14,55	3,58	7,43	28,51	,28	" 12 .....	14,67	24,04	14,51	1,13	54,35
14,55	3,63	7,51	28,87	,28	" 19 .....	14,69	23,15	15,75	1,25	54,84
14,55	3,60	8,09	28,71	,26	" 26 .....	14,69	22,76	16,49	1,27	55,21
14,55	3,86	8,90	29,36	,29	Mar. 5 .....	14,96	23,72	16,95	1,33	56,96
14,55	3,86	9,72	28,37	,27	" 12 .....	14,93	22,54	17,90	1,40	56,77
14,55	3,92	10,77	28,39	,26	" 19 .....	15,45	22,37	18,65	1,42	57,89
14,55	3,93	10,97	28,35	,24	" 26 .....	15,45	22,38	18,93	1,28	58,04
14,55	3,92	10,64	28,32	,37	April 2 .....	15,54	23,00	18,12	1,14	57,80
14,55	3,14	7,06	30,65	,33	" 9 .....	14,91	22,16	17,36	1,30	55,73
14,55	3,14	6,55	31,82	,27	" 16 .....	14,91	22,33	17,80	1,29	56,33
14,55	3,15	6,60	32,39	,33	" 23 .....	14,91	22,38	18,50	1,23	57,02
14,55	3,13	6,65	31,42	,29	" 30 .....	14,91	21,80	18,24	1,09	56,04
14,55	3,14	6,98	30,40	,31	May 7 .....	14,91	21,23	18,07	1,17	55,38
14,55	3,14	7,22	29,50	,28	" 14 .....	14,68	20,97	17,89	1,15	54,69
14,55	3,15	7,54	29,31	,27	" 21 .....	14,68	21,02	17,90	1,22	54,82
14,55	3,15	8,02	28,28	,26	" 28 .....	14,67	20,19	18,17	1,23	54,26
14,55	3,10	7,56	27,72	,26	June 4 .....	14,68	19,70	17,66	1,15	53,19
14,55	3,10	7,70	27,87	,28	" 11 .....	14,68	19,20	18,37	1,25	53,50
14,55	3,10	7,58	28,84	,30	" 18 .....	14,68	19,08	19,37	1,24	54,37
14,55	3,11	7,95	28,58	,26	" 25 .....	14,68	18,52	19,85	1,40	54,45
14,55	3,17	7,28	29,96	,29	July 2 .....	14,48	20,02	19,49	1,26	55,25
14,55	3,30	4,82	32,83	,32	" 9 .....	16,78	18,27	19,49	1,28	55,82
14,55	3,34	4,05	33,51	,35	" 16 .....	16,75	17,92	19,81	1,32	55,80
14,55	3,35	4,03	33,45	,35	" 23 .....	16,75	17,85	19,86	1,27	55,73
14,55	3,34	4,38	33,29	,32	" 30 .....	16,75	17,76	20,25	1,12	55,88
14,55	3,38	4,46	32,26	,33	Aug. 6 .....	16,80	17,47	19,55	1,16	54,98
14,55	3,39	5,52	31,30	,34	" 13 .....	16,80	17,14	19,95	1,21	55,10
14,55	3,42	5,53	31,06	,28	" 20 .....	16,33	16,96	20,35	1,20	54,84
14,55	3,37	4,88	31,08	,29	" 27 .....	15,93	16,93	20,14	1,17	54,17
14,55	3,72	4,61	30,67	,29	Sept. 3 .....	15,53	17,61	19,51	1,19	53,84
14,55	3,72	5,38	31,14	,30	" 10 .....	16,34	17,28	20,23	1,24	55,09
14,55	3,72	5,60	31,55	,29	" 17 .....	16,34	17,25	20,93	1,19	55,71
14,55	3,73	6,00	31,48	,28	" 24 .....	16,33	17,33	21,16	1,22	56,04
14,55	3,72	5,48	31,09	,29	Oct. 1 .....	16,83	17,45	19,74	1,11	55,13
14,55	3,05	5,90	33,51	,32	" 8 .....	19,57	17,43	19,23	1,10	57,33
14,55	3,07	5,08	33,68	,35	" 15 .....	19,37	17,77	18,41	1,18	56,73
14,55	3,07	4,94	32,86	,36	" 22 .....	19,17	17,88	17,47	1,26	55,78
14,55	3,08	4,90	31,93	,30	" 29 .....	19,07	17,86	16,66	1,17	54,76
14,55	3,07	4,17	31,69	,34	Nov. 5 .....	18,57	18,59	15,55	1,11	53,82
14,55	3,07	3,12	31,94	,34	" 12 .....	18,14	18,76	15,00	1,12	53,02
14,55	3,08	3,36	31,49	,36	" 19 .....	17,79	18,89	14,99	1,17	52,84
14,55	3,08	3,14	31,09	,33	" 26 .....	17,29	18,84	14,97	1,09	52,19
14,55	3,03	2,76	29,97	,35	Dec. 3 .....	16,35	19,17	14,10	1,04	50,66
14,55	3,04	3,65	28,63	,34	" 10 .....	15,65	19,01	14,43	1,12	50,21
14,55	3,06	4,41	29,11	,30	" 17 .....	15,84	19,65	14,68	1,26	51,43
14,55	3,06	5,20	28,04	,48	" 24 .....	15,84	20,30	14,02	1,17	51,33
14,55	3,07	8,03	29,97	,23	" 31 .....	16,59	24,29	13,75	1,22	55,85

FOREIGN EXCHANGES.—*Quotations as under, LONDON on Paris, Hamburg and Calcutta;—and New York, Calcutta, Hong Kong, and Sydney, on LONDON, for 1879.*

1 DATES. (Approximately.)	2 London on Paris. 3 m. d.	3 London on Hamburg. 3 m. d.	4 New York. 60 d. s.	5 6 Calcutta.		7 Hong Kong. 6 m. d.	8 Sydney. 30 d. s.	9 Standard Silver in Bars in London. pr. oz.
				Indian Council Bills.	Calcutta on London Bank Bills. 6 m. s.			
1879.			Per cent.	d.	d.	d.	Per cent.	d.
Jan. 3 ....	25·57½	20·76	4·81¼	18½	19½	43½	—	49½
„ 17 ....	25·52½	20·67	4·84	19½	20	—	—	50½
Feb. 11 ....	25·45	20·61	4·85	19½	19½	43½	—	49½
„ 25 ....	25·47½	20·64	4·85½	19½	19½	43½	—	49½
Mar. 11 ....	25·52½	20·65	4·86¼	19	19½	43½	—	49½
„ 25 ....	25·50	20·65	4·85	19¼	19½	43½	—	50½
April 8 ....	25·50	20·66	4·86	19½	19½	43½	—	49½
„ 22 ....	25·42½	20·61	4·86	19½	19½	43½	—	49½
May 6 ....	25·37½	20·58	4·86¾	19¼	19½	44½	—	50½
„ 20 ....	25·40	20·59	4·87¾	19½	19½	44½	—	50½
June 3 ....	25·37½	20·59	4·87	19½	20	47½	—	52½
„ 17 ....	25·45	20·60	4·87	20	20½	47½	—	52
July 3 ....	25·45	20·62	4·85½	19½	20½	46½	—	52½
„ 17 ....	25·47½	20·63	4·85¼	19½	20½	45½	—	51½
Aug. 5 ....	25·45	20·63	4·81¾	19½	20½	44½	—	51½
„ 19 ....	25·47½	20·64	4·81¼	19½	20½*	44½	—	51½
Sept. 4 ....	25·52½	20·66	4·80¾	19½	20*	44½	—	51½
„ 18 ....	25·50	20·65	4·81½	19½	20½*	44½	—	51½
Oct. 2 ....	25·50	20·63	4·81	19½	20½*	44½	—	51½
„ 16 ....	25·47½	20·62	4·80½	20	20½*	44½	—	52½
Nov. 4 ....	25·42½	20·56	4·79½	20½	20½*	46½*	—	53½
„ 18 ....	25·45	20·55	4·80¾	20½	20½*	46½*	—	53½
Dec. 4 ....	25·47½	20·57	4·81	20½	20½*	46½*	—	52½
„ 18 ....	25·47½	20·57	4·81½	20½	20½*	45½*	—	52½

\* These are at four months' date only.

## JOURNAL OF THE STATISTICAL SOCIETY,

JUNE, 1880.

*On the EDUCATION and TRAINING of the CHILDREN of the POOR.*

By FREDERIC J. MOUAT, M.D., *late Secretary and Member, Council of Education of Bengal; Member of the Senate, of the Faculties of Arts and Medicine, and Fellow of the University of Calcutta; Vice-President and Foreign Secretary Statistical Society, &c., &c., &c.*

[Read before the Statistical Society, 20th April, 1880.]

## CONTENTS:

	PAGE		PAGE
Introduction .....	184	Casual Children.....	230
Who and what are Pauper		Summary .....	231
Children? .....	185	Conclusion .....	233
I.—The PAST .....	188		
State of the Question prior			
to the passing of Poor			
Law Amendment Act of			
1834 .....	188		
II.—The PRESENT .....	191		
(a) Workhouse Schools ....	193		
(b) Separate Schools .....	196		
(c) Certified „ .....	198		
(d) Training Ships .....	199		
(e) Boarding Out .....	202		
(f) District Schools .....	206		
Cost of Education in the Poor			
Law District and Separate			
Metropolitan Schools .....	209		
Results of Education in Poor			
Law Schools .....	212		
III.—The FUTURE.....	220		
Why the District and			
Separate Schools on the			
Aggregate System, have			
not fully answered the			
end intended .....	221		
Reasons for preferring the			
Cottage Home System			
in all future Schools			
detached from Work-			
houses .....	224		
Educational Standards of			
Elementary Instruction .....	228		
Army and Navy Schools...	230		

## APPENDIX.

Table I.—Number of Children	
educated and Parliamentary	
Grant for payment of Teachers,	
1851-78 .....	235
Table II.—Gross Expenditure and	
Cost per Child in Metropolitan	
District Schools, 1869-73 .....	236
Table III.—Details of Annual	
Cost of above, under heads of	
Provisions, Necessaries, Re-	
pairs, and Furniture, and Edu-	
cation and Industrial Training .....	238
Table IV.—Parliamentary Returns	
of Numbers of Young Persons	
educated in Workhouses and	
District Schools who returned	
to the Houses, either from mis-	
conduct, or from causes not	
involving misconduct. Sum-	
mary by Counties .....	240
Table V.—Table of Young Of-	
fenders admitted to and dis-	
charged from Certified Reforma-	
tory Schools from 1854-56 .....	242
Table VI.—Number of Juvenile	
Offenders committed to Refor-	
matories who have been Inmates	
of Workhouse or District Schools	
from 1868-77 .....	243

*Introduction.*

IN the early period of the institution of the Statistical Society of London, few questions occupied a larger share of its time and attention, and none were considered with more care, than those connected with education, especially in relation to the elementary branch of that important subject; which, in one of not the least interesting of its phases, is the immediate purpose of this paper.

Before proceeding to the consideration of the subject, I deem it right to mention that the statements and views contained in the paper are purely and entirely personal, and must not be considered to have any official significance, from my connection with the Local Government Board, under the general direction and authority of which the education of all poor law children in England and Wales is conducted. My qualification for considering such a question is based upon a practical acquaintance of some fifteen years' duration, with all branches of education. In Bengal, from the primary elementary schools of that presidency, to the institution of Universities in India, based upon plans proposed by me some years prior to their adoption by the State. In this country, I have been connected with the poor law administration, for nearly eight years. I conducted two great inquiries, which are published in official records, into the schools of the metropolis, which gave me a thorough insight into their management, and I have since seen many workhouse schools and children in nearly every part of England and Wales. I hope, therefore, that I do not come quite unprepared to the task which I have undertaken.

A committee of the Society was appointed, and continued for some years to conduct educational inquiries, of which the results were, from time to time, published in our *Journal*. They are a mine of wealth on the subject, and of considerable historical interest.

These investigations only came to an end, when a department of the State took up and continued the work on an extended scale, with such command of public funds, and with access to such abundant and instructive sources of information, as rendered it unnecessary, as well as inexpedient, for private persons to continue to labour in a field so thoroughly occupied by able, active, accurate workers, charged with the official responsibility of a public duty in the matter.

Of all the unpaid toilers in this field, no one was more earnest, devoted, painstaking, large and liberal in his views, and clear and candid in his exposition of them, than the late Mr. Joseph Fletcher, for some time Secretary of the Society and Editor of its *Journal*, in several volumes of which his writings are to be found. His admirable paper on the Farm Schools of the Continent, and the applica-



tion of the system to the preventive and reformatory education of *pauper* and *criminal* children—terms which were, at one time, nearly synonymous—was reprinted by the Society last year.\* If the great value of its contents were better and more widely known, it would have been eagerly purchased by all interested in or connected with the children of the classes to which it relates, as containing counsels of wisdom in relation to their management, which are of as much importance now, as they were when written so long since.

Mr. Fletcher's paper immediately preceded the establishment of district schools in the metropolis, some of which have now been more than a quarter of a century in existence, and, in consequence, are in a position to afford positive testimony as to the soundness or otherwise, of the views which led to their institution. It therefore marks an epoch, and I take up the parable where Mr. Fletcher left it, for it seems to me to be an important function of such a Society as ours, to continue and revise its work from time to time, guided by the light of subsequent experience, in all great practical questions.

The excellent reports of the Educational Department of the Privy Council, show how well its work has been done, and how largely and beneficially the facts and figures collected by its officers, have influenced the legislation of the country in the wise direction of its public instruction. It is, I think, no small merit fairly due to this Society, that it early saw the importance of the work, and paved the way for its continuance in a manner altogether beyond its own power, before it allowed it to pass out of its hands.

Before I proceed to the immediate development of my subject I must say a few words as to who and what are known as pauper children, and to indicate precisely the nature of the raw material we have to convert into good stuff, for "to eradicate the hereditary taint of pauperism, would be to annihilate the great mass of the pauperism of the country;" wise words, written by an earnest and singularly single-minded and devoted friend of this class, whose eminent and invaluable public services have not received the public recognition to which they are entitled: I mean Mr. E. C. Tuffnell, the late inspector of the Metropolitan Poor Law Schools.

What are termed pauper children, are the offspring of destitute persons, maintained from the rates in union workhouses, district schools, and training ships, or boarded out at the expense of their several unions, in all of which cases they are dependent from the misfortune of their birth and parentage, and from no fault or cause of their own.

\* "Statistics of the Farm School System of the Continent, and of its Applicability to the Preventive and Reformatory Education of Pauper and Criminal Children in England." By Joseph Fletcher. Edward Stanford, 1878.

Now, as the term "pauper" has become one of reproach, and is associated with moral and social degradation, I hold it to be impolitic and wrong to brand with it those who are in no way responsible for the unfortunate position in which the destitution of their parents has—to whatever cause due—placed them. Thus branded, stigmatised, and placed in a class apart, the child has not a fair start in life.

"A child should not be degraded in his own estimation by being "a member of a despised class. A child cannot be a pauper in the "sense in which that term is commonly understood; that is, he "cannot be indigent as the consequence of his own want of industry, "skill, frugality, or forethought, and ought not, therefore, to be "taught to despise himself. The pauper apprentice and the juvenile "vagrant were, under the old system, brethren of the same class, "outcasts, neither trained by frugal and industrious parents, nor "by a well-devised system of public industrial education.

"The dependence of pauper children is probably the natural "consequence of the crimes or follies (but it may also be of the "misfortunes), of their parents; and in any of these cases it is the "interest of society that the children should neither inherit the "infamy nor the vices, nor the misfortunes of their parents."\*

The remedy suggested for all this was the establishment of district schools, in which the children should be taught with other children not received from the workhouse, nor the offspring of pauper parents.

When I asked in Holland for information regarding their pauper schools, I was told that no such thing existed, and that the application of the epithet was not permitted. Provision for the education and training of all the children of the poor was made, and no section of them was treated as a separate class, an example which it would be wise for us to follow, when a change in the existing laws permits, and the education of the whole of the poor is gratuitous, as well as compulsory, a change which I venture to think must come, however revolutionary and opposed to our present habits of thought and manner of dealing with these questions, it appears at first sight to be. This, however, touches the whole question of elementary education, which is not within the scope of my paper. In the title to this paper I have advisedly used the word *poor*, instead of that of *pauper*, because the term is already employed in some of the acts of parliament on the poor laws, and because it will be understood, after my definition of what the children referred to really are.

Nowhere, and by no one, has this class been better described

\* Dr. Kay, "Reports on the Training of Pauper Children," &c. London, 8vo., 1841, p. 31.

than by the late Sir James Kay-Shuttleworth, in the parliamentary report already referred to, when writing of the School of Industry at Norwood.

“As they are chiefly orphans, deserted, illegitimate, or the offspring of persons undergoing punishment for crime, they are, in fact, children of the dregs of the pauper population of London, and have consequently, for the most part, been reared in scenes of misery, vice, and villainy. Their physical conformation and physiognomy betray that they have inherited from their parents physical and moral constitutions requiring the most vigorous and careful training, to render them useful members of society. They arrive at the school in various stages of sickness and disease: some are the incurable victims of scrofula; others are constantly liable to a recurrence of its symptoms; almost all exhibit the consequence of the vicious habits, neglect, and misery of their parents. Visitors invariably mark the prevalence of a singular formation of their heads; that the boys have almost invariably coarse features, and that the girls are almost all plain. To the physical coarseness are added faces of suspicion, obstinacy, and gloom.”

My own observation, based on an examination of the physical state of several thousands of those in the district schools of the metropolis, and the children of more than one of our great centres of industry, such as Birmingham, Manchester, and Liverpool, brought out in startling relief the fact, that they are a scrofulous, undersized, badly-developed, narrow-chested, degenerate class, as compared with all other sections of the population urban or rural; that they are more or less torpid and flaccid in mind and body, and altogether below the average standard of those in town and country in health and stature, and in the beauty of form and feature, which struck St. Augustine so many centuries since, and which still happily characterise the progeny of the British nation, in an ethnological point of view.

Between the lowest type of workhouse child, as described by Sir James Shuttleworth, and the children of the poor, whose poverty is the result of misfortune and not of vice or crime, and who have seen better days, there is, however, nearly every gradation of physical development; but, the majority are generally below the usual standard of beauty of form and healthiness of conformation, of the working classes of the population at large. In the rural districts sound and healthy children are generally found, but they are in a painful minority in the great masses of pauper children throughout the country; and I am afraid it must be accepted as true that, as a class, they are as above described.

I dwell upon these points strongly, because it is, in my opinion,

the key to the solution of the problem, of how best to deal with them, at the most critical period of their lives.

We have not only to train them to earn an honest livelihood when of suitable ages, to lead useful and moral lives, to recruit the ranks of the industrial classes, and to become permanently dispauperised; but, it seems to me to be of almost equal importance so to conduct and regulate their training, as to make healthy men and women of them, that they may not in time become the progenitors of a still more degenerate race; inasmuch as it is now accepted by all physiologists, that the defects which are transmissible by heredity, are intensified in each succeeding generation.

The rapid and somewhat alarming gravitation of rural populations to urban centres, moreover, invests the subject with special interest, for the children of the poor, born and bred in, or transferred to towns, rapidly degenerate and become scrofulous, from overcrowding, defective food, absence of the means of healthy recreation, and other insanitary conditions. The taint, as remarked above, is often accompanied by the coarseness of feature and other signs of mental and moral degradation, not usually found in the same classes of the country population. To arrest this state before it becomes permanent, is then of the utmost importance, for all the consequences of scrofula are harder to remove the longer it lasts. In the second and third generations they become stereotyped, and fill our institutions with the halt, the blind, the epileptic, and the imbecile. They bear out the view of some of the most careful and experienced of the earlier writers on the poor laws and their administration, that pauperism, and the diseases begotten of it, are, to a very large extent, hereditary. That some of these physical evils are on the increase, appears to me to be undoubted, and among the causes I hold to be the condition of the children of the poor generally, in all our great towns.

With this unavoidably lengthened preamble, I proceed to the immediate subject of my paper, which, to consider logically, I must divide into three steps or stages, the past, the present, and the future, so as to utilise the knowledge and experience of the past and present, in the guidance and direction of the future.

#### I.—THE PAST.

This does not need any lengthened demonstration, for its evils were long since recognised, and to a certain extent remedied. Wherein the remedy has fallen short of the desired effect, and further measures appear to be necessary to carry it into full effect, I shall endeavour in my concluding remarks to show.

The commissioners appointed to consider and report upon the working of the poor laws, in the third decade of the present



century, whose labours culminated in one of the most beneficial of all our measures of domestic legislation of modern times, in winding up their work, directed attention to the necessity of attacking the evils of pauperism at their source.

They said, and I quote the whole of their words, for they cannot be too earnestly and frequently impressed :—

“It will be observed that the measures we have suggested are “intended to produce rather negative than positive effects, rather “to remove the debasing influence to which a large portion of the “population is now subject, than to afford new means of prosperity “and virtue. We are perfectly aware that, for the general diffusion “of right principles and habits, we are to look, not so much to “any economic arrangements and regulations, as to the influence of “a moral and religious education.”

“But one great advantage of any measure which shall remove “or diminish the evils of the present system, is that it will in the “same degree remove the obstacles which now impede the progress “of instruction, and mitigate its results ; and will afford a fair “scope to the operation of every instrument which may be “employed for elevating the intellectual and moral condition of “the poorer classes.”

The commissioners went on to observe, that as the subject was not within their commission, they would not dwell further on it, and that they only ventured on the few remarks above cited, for the purpose of recording their conviction, “that as soon as a good “administration of the poor laws shall have rendered further im- “provements possible, the most important act of the legislature is “to take measures to promote the religious and moral education of “the labouring classes.”

In consequence of this recommendation, after the appointment of poor law commissioners, and when the department was in full working order, in 1839, the attention of the commission was specially directed to the subject by the Home Secretary, and instructions were accordingly issued by them to those assisting the commissioners, to make inquiry into, and report as to—

1. The state of the pauper schools before the passing of the Poor Law Amendment Act.
2. The improvements introduced into those schools since the passing of the Act.
3. The further improvements which might be introduced into the pauper schools, and the obstacles to such further improvements.

Somewhat detailed instructions were given as to the great points necessary to be inquired into and made known, and much minute

and valuable information was soon collected, of which the most important was printed in an invaluable report, published by the poor law commissioners in 1841. By very far the best of all the reports were those of Dr. Kay, and Mr. E. C. Tuffnell, which abounded in carefully collected facts, and excellent practical suggestions regarding the measures necessary to remedy the evils pointed out. They all united in one unbroken chorus of condemnation, of the ante-poor-law amendment period. These schools were shown to be, as a rule, efficient instruments of evil, with few redeeming qualities. A large portion of the criminal population was supplied from the juvenile inmates of the workhouses and their schools; the system of apprenticeship then in force was one of intolerable abuse; and the evidence of workhouse masters and assistant commissioners tended to show, that the bad results of the system were in so great a measure due to the associations inseparable from the immediate connection of the schools with the workhouses, that the remedy was to be sought in the complete separation of the children from the adult paupers, rather than in the amendment of the schools themselves.

Some of the more flagrant abuses were corrected so far as correction could be applied without going to the root of the evil, and there was found an occasional oasis of good and efficient management, in the dreary desert of a wrong direction in the training of the children of the poor. There was not, however, sufficient of this leaven to leaven the mass, and the radical remedy of the establishment of District Schools entirely separated from the workhouses, was suggested and steadily kept in view, until after much discussion and inquiry, the public were sufficiently educated to induce the legislature to grant the necessary authority for their establishment. Large schools were recommended, on the ground of economy of management, and efficiency of education and training at moderate cost, the expense of the material and agency employed being spread over a large surface, and thus lessening the outlay necessary for the fair start in life of each individual child.

The authors of the plan, however, I think rightly, deprecated its being considered from the economic side only, for any plan which falls short of efficiency from the grudging of really necessary expenditure of money, cannot be considered to be economical, in the true sense of that much misapplied and misused term. The conversion of unprofitable consumers into profitable producers, the rescue of the young from augmenting the ranks of those preying upon society, the enormous gain to the commonwealth of a virtuous, well conducted, industrious, and thrifty population, are ends that justify, and even sanctify, any outlay requisite to attain them, even if there be not, as I hold there are, yet higher objects than are mentioned

above, in giving to the unhappy children, who are not responsible for their lowly lot, the best education and training it is in our power to give, consistent with the position—the honourable position I esteem it to be—they are intended to occupy in the great army of the labouring classes. As modern society is itself responsible for many of the evils inseparable from civilisation in its most advanced development, so it should not grudge to the irresponsible, the means requisite to counteract those evils, so far as it is in our power to remedy them. And surely in no direction have we a better prospect of success, than in the moral and industrial training of the offspring of the poor. Rightly regarded, these children of the State are invaluable material when rightly dealt with. I do not believe in the practicability of making men sober and industrious, and women virtuous, by the agency of acts of parliament; I attach comparatively little importance to efforts to reclaim those steeped in vice and crime, in the maturity and decline of their lives: but I do believe, most heartily and unfeignedly, in the moral and industrial training of the young, and in the efficacy of education generally as efficient agents in ridding the body politic of the most unwholesome of its humours, in cutting out the corrupting cancer of pauperism from its deepest attachments, and in purifying the turbid stream of our social life at its source.

No opportunity was neglected by the poor law commissioners in placing the question fairly and fully before boards of guardians; until, by the passing of Act 7 and 8 Vict., cap. 112, the necessary powers for the formation of school districts, were granted by the legislature. This met the customary opposition to all new measures intended to secure uniformity of action, but in due course of time district schools were founded in the metropolis, with the consent of the local authorities, and without the enforcement of the compulsory powers contained in the Act.

As I am not writing a history of the working of the poor laws since the passing of the great Act of 1834, this brief outline is all that seems to me to be necessary to record regarding the past, in relation to the education and training of the children of the poor—and it naturally brings me to the second division of my subject.

## II.—THE PRESENT.

There are now six recognised methods of dealing with the children known as the pauper class, viz.:—

- (a) In Workhouse Schools.
- (b) „ Separate „
- (c) „ Certified „
- (d) „ Training Ships.
- (e) „ Boarding out, and
- (f) „ District Schools.

Of the schools which still form an integral portion of the workhouses, a considerable number send the children for instruction to national, parish, board, and other day schools, maintaining them in the workhouse after the time of instruction. The instruction in all the schools mentioned is based on the standards of the Education Department; and is, in fact, that of the public elementary education of the country.

It is impossible to ascertain from the official returns, the exact number of the children dealt with. The number of those taught in district and workhouse schools, with the salaries of the teachers, is given in Table I, from 1851, the date of Mr. Fletcher's paper, to the last published report of the Local Government Board. There has been comparatively little increase or decrease in the numbers and cost, which have been carefully compiled from the returns of the late Poor Law, and the present Local Government Boards. The smallest average number under instruction in any one year was 30,654, and the largest 41,574.

From a summary prepared from the returns of 1877, the following figures were obtained, there were:—

Number of in-door pauper children on the	{ sane.....	47,596
1st January, 1877 .....	{ insane ...	644
		<hr/> 48,240
Of these the number of the orphans, or those	{	
relieved without their parents, was .....	}	28,748
		<hr/>

A considerable number of the above were infants below the age at which instruction begins. Of those under instruction, the following was the distribution at the time mentioned:—

Number of Unions.	How Disposed of.	Daily Average Attendance, Half-Year ended Lady-day, 1877.
33	Sent their children to 9 <i>district</i> schools .....	5,595
55	Maintained their children in 49 <i>separate</i> schools.....	8,722
416	Educated the children in 414 workhouse „ .....	17,980
136 {	Sent their children to national, parish, board, and } other day schools, average attendance at .....	2,080
		<hr/> 34,377
	This is exclusive of—	
1	Which sent the children to an industrial school ....	
3	Boarded out their children .....	
6	Had no workhouses or in-door paupers .....	
650		

The above figures are only an approximation to the truth, for the number of the large class of casual children who are con-



stantly in and out of the workhouses with their parents, is extremely difficult to ascertain, from the incomplete records published.

There is also some fluctuation in the numbers themselves, as shown by the following abstract of the returns for 1878, the latest for which I have been able to obtain the figures. The number of children supported out of the rates must of necessity, to a great extent, fluctuate, in accordance with the variation of the pauperism of the parents.

Number of in-door pauper children on 1st	{ sane.....	51,427
January, 1878.....	{ insane....	713
		<hr/>
		52,140
Of these children the number of the orphans and	{	30,714
of children relieved without their parents was ....		
		<hr/>

Of those actually under instruction on the same date, the following is the number :—

Number of Unions.	Manner of their Disposal.	Daily Average Attendance, Half-Year ended Lady-day, 1878.
34	Sent their pauper children to 10 district schools.....	6,206
35	28 separate „ .....	7,011
418	Taught their „ in 415 workhouse schools..	20,401
156	{ Sent their pauper children to national, British, board, and other day schools; the average attendance may be estimated at .....	2,870
1		
3	Union boarded out its in-door pauper children .....	
1	Unions had no workhouse .....	
—	Union had a few children but no school .....	
—	In the training ship “Exmouth” .....	139
649	Total daily average attendance in school.....	36,627

(a)—*Workhouse Schools.*

From these returns it will be seen that by far the largest number of the children are still retained in schools which are integral parts of the workhouses, viz., 18,000 in 1877, and 20,401 in 1878.

In spite of all that has been said and written on the subject since 1834, and notwithstanding the great and undoubted improvements which have been effected in the internal arrangements and management of most of our workhouses, the pauper class is very much the same now as it was then, and probably ever will be,\* and

\* “Strange as the assertion may sound in some ears, I believe it, nevertheless, to be quite true that, of the many millions of adult men and women in England, scarcely a solitary person has thought of asking himself this vital question : What

the evil influences of pauper example and associations continue to be about the worst to which a child can be subjected, at the most plastic and impressionable period of life.

To children brought up in a workhouse, however well managed, the early home will be the one looked to with greatest affection throughout life, for early influences are the most lasting; and the great kindness and affection with which they are, as a rule, treated by masters, matrons, and workhouse officials generally, will seldom be effaced from the memories of even the careless and indifferent, and those whose misfortune it has been never to have known real parental affection, or home life beyond the dreary walls of the union house. Where such a feeling exists, the wholesome sentiments of independence and self-respect are blunted, and in most cases probably altogether deadened. The chief incentives to thrift and economy are removed, when no sense of disgrace is attached to the workhouse as a refuge in times of distress, in old age, in sickness, and even in temporary pressure from bad seasons, short work, strikes, and the other incidents of the career of the improvident, idle, and ill-disposed members of the working classes, who, unfortunately, are far too numerous in these times of high pressure, and keen competition at home and abroad. Parents imbued with such sentiments have no scruple in abandoning their children to the support of the public, and children make no effort to maintain their parents in old age, while the house which sheltered, fed, and clothed them in early life, is open for their reception. The best managed workhouse schools are those of which the memory will survive longest in the minds of those who have been trained in them. Human nature in its springs of action is very much the same in all classes, guided as much by early training and influences as by temperament

becomes of the worn-out and used-up multitudes of the criminal and dangerous classes? When they can plunder and plague the public no longer, into what holes and corners do they slink to die? Not in garrets and cellars—the poor die in such places as these—not in ditches and under hedges, but in union workhouses. Where else should they wear out the remnant of their ill-spent lives? Where, too, do the children of the dangerous classes, taught to steal, sent out to beg, witnesses perforce of every nauseous vice, full to the brim of revolting experiences, their every word an indecency or a blasphemy; where do they go? Where must they go, when by any accident they fall helpless into the hands of the police? There is but one answer. They, too, must go to the union. And so of profligate mothers, when their time of trouble comes; and so of the tramping imbecile, when the weather is not to his taste. These and every other variety of vicious manhood, womanhood, and childhood, must find their way to the union workhouse—must take part in the education of those with whom they are made to associate. Let who will do the work of instruction, these, and such as these, must bring to bear on all around them the terrible force of example. These must carry on the work of education. Thus does the union workhouse become inevitably the normal school of all the vices.”—“Walker’s Original,” 5th edition, by Dr. Guy, p. 218.

and constitution, modified, as they probably are more or less, by hereditary and transmitted tendencies.

All wages earned in excess of the narrowest requirements of daily existence, will be freely spent in drink and dissipation—there will be no heed for the morrow. Food, a fireside, a bed, and the constant congenial companionship of men and women of their own stamp, are always ready for their reception on the submission of proofs of destitution. What more do they want? They will at once resort to it when such a life as theirs has produced its natural result, early decay and indisposition to exertion. Hence, I regard the workhouse as the best possible training school for the production, continuance, and extension of pauperism, and I am by no means sure that it is not still responsible for some of the crime of the country. A comparatively small part of pauperism is due to true misfortune, and the failure of honest, but unprosperous exertions. Every class, doubtless, has its social failures, but the short and simple annals of the poor, if correctly apprehended and honestly written, would, I am afraid, show that the majority of those who become a permanent burthen to the community, are exactly of the type which a workhouse training is calculated to evolve.

As the workhouse test, when rightly used and rigorously applied, has nearly banished the able-bodied from all well-governed unions, and left the houses to the old, decayed, worn-out, and feeble in mind and body; so the absolute exclusion of all children from their precincts, would cut off the most fruitful supply of paupers at its source.

Many excellent and benevolent persons doubt the heredity of pauperism. I do not—but this is a side issue not necessary to my argument. Hence I shall content myself with its mere mention.

I have been informed by a gentleman who has had several years' knowledge and experience of street arabs, and who has long been engaged in the training of criminal children, that by far the most depraved and incorrigibly vicious children who have come under his care, have been those who have been in workhouse schools.

There is, of course, a reverse to this medal, and many exemplary members of the working classes, of both sexes, have been trained in such institutions. Yet the strength of any system must be judged by its weakest point, and if it be true that evil communications corrupt good manners, such communications are the normal state of a large proportion of the inmates of workhouses.

That children can be properly educated and trained in workhouse schools, with the necessarily imperfect machinery that can be employed, I altogether disbelieve, and assuredly their hereditary

physical defects are not to be corrected either by the surroundings, or the dreary life of such places.

Children out of school hours need to be under nearly as careful regulation, as when at their studies. If left to their own devices, or in the charge of adult pauper inmates, they hang about the most objectionable places within reach, the result of which is the reverse of any beneficial influence either on their morals or their manners. They also require to be taught to play, and to benefit by all the conditions of active out-door exercises, which are so necessary to their healthy physical growth.

In early infancy they are sometimes placed in the charge of weak-minded paupers, who, although often singularly gentle and kindly in their treatment of their young charges, are about the very worst persons to whom a duty of so much importance should be assigned. Most persons of weak minds, however careful, tractable, and affectionate they may usually be, are at times uncertain tempered, and not capable of self-control. Their habits and entire want of education cause them to teach children objectionable tricks and ways, which are difficult to eradicate at a later period, and are not improbably the source of some of the nervous and similar disorders, with which this class are known to be afflicted. Some of the forms of epilepsy, ending often in complete loss of reason, are, I have reason to think, due to previous habits acquired in early life. From tables which I prepared in 1874, it appeared that in the year in question there were in the extra-metropolitan workhouses 542 deaths from brain disease, 258 from epilepsy, and 1,283 from paralysis. There are at all times a considerable number of epileptics in the workhouses. If the exact history of the above casualties could be ascertained, it is more than probable that many of them had their remote origin in workhouse influences and conditions. Hence, in my belief, an additional reason of some weight why pauper children should never be educated and trained in workhouses. To many of them the remarks published in 1841, by the late Sir James Kay-Shuttleworth, Mr. Tuffnell, and others still apply, and to their reports I must refer those who desire further information on the subject.

I hope that the time is not far distant, when by the formation of county boards and the better organisation of all local institutions, boards of guardians will be brought to see the desirability of separating schools entirely from workhouses, without a resort to compulsory legislation in any form.

#### (b)—*Separate Schools.*

These are schools detached from the workhouses, sometimes in their immediate vicinity, but for the most part at a distance, and



under the control of the workhouse authorities. The numbers taught in such schools range from 7,000 to 8,000 and upwards. Some of them are of considerable importance, as will be seen by the following lists of those in effective operation in 1878, with the number of children in each :—

Westminster (Battersea) .....	127	Oxford.....	98
St. Marylebone (Southall).....	318	Hartismere .....	30
St. Pancras (Leavesden) .....	566	Norwich .....	24
Islington (Holloway).....	272	Bristol.....	131
Strand (Edmonton) .....	410	Wellington .....	57
Holborn (Mitcham) .....	540	Birkenhead .....	161
Bethnal Green (Leytonstone) ...	277	Liverpool .....	688
St. George-in-the-East (Plashet)..	267	Kirkdale (girls) .....	66
Mile End Old Town (Bancroft } Road) .....	281	West Derby (the boys at Kirk- } dale) .....	—
Lambeth (Norwood) .....	465	Manchester (Swinton) .....	966
Brighton .....	247	Newport (Monmouthshire) .....	198
Petworth .....	17	Cardiff.....	169
Barnet .....	101	Bridgend and Cowbridge .....	110
Edmonton .....	156	Swansea .....	69
Wycombe .....	54		

Since that time a separate school for Birmingham was occupied at the end of 1879, at Marston Green.

The largest of these schools are, in all essentials as respects establishment, teaching, industrial training, and management, on the footing of district schools. Some of them, as Kirkdale and Swinton, have attained high proficiency in mental culture and industrial training, and are doing a great and important work in the dispauperisation of the children of the important industrial and manufacturing centres in which they are situated. Those at a distance from the union houses are, taken altogether, absolutely free from workhouse influences and associations, and the successful subsequent career of those trained in them, which in a large number of instances has been carefully traced, shows that they are conducted wisely and well. Those which contain large numbers in big buildings on the aggregate system, suffer from the conditions of such aggregation in health, and in the enforced absence of the study of individual character, which is the only really sound system of educating the young. But as they share those disadvantages with the district schools, with which they are essentially identical in character, I shall postpone my remarks on this head until I come to them.

Although the district schools come first in logical sequence, from the number of children—5,000 to 6,000—educated in them, I shall consider them last, for reasons which will appear anon.

From the returns it appears that from some 150 or more unions,

the children are sent to national, board, and other schools for their mental culture, returning to the workhouses for their meals, and in all other matters becoming inmates of those institutions. The number of children thus disposed of, is between 2,000 and 3,000.

This does not appear to me to be a satisfactory arrangement, notwithstanding that the instructive staff of those schools is superior to the teachers found in the smaller workhouses, and that the mental training, mode of thought, and the glimpse of the outer, self-reliant world obtained by the children, are educational influences of considerable value. All these advantages are neutralised by the workhouse atmosphere to which they return, and from which they come, and the association with adult paupers, which no vigilance can prevent. The absence also of industrial training, which exists only in name in most of the smaller workhouses, is a cardinal defect of the system for which nothing can compensate.

It would be far better for the guardians of all the unions which adopt this system, from the most praiseworthy motives, to combine together in each county to form district schools, than to rely upon a plan which, seeming to be advantageous, leaves the vices and defects of the old system in full vigour, during, by far, the greater part of the lives of the children of the poor committed to their charge. In some instances, what are called industrial trainers are employed to take charge of the children to and from school, and to look after them in the workhouse. In other cases, the same duty is performed by pauper inmates. The root of the evil is not reached by either plan. The workhouse and its associations overshadows them all, and little that is healthy can grow in its shade.

(c)—*Certified Schools.*

There is another class of schools not specifically mentioned in the tabular statement, which deserves a passing notice, viz., schools certified under the statute, 25 and 26 Vict., cap. 43. These are schools under private management, in which pauper children are taken in for education and training on the payment by the guardians of the unions from which they are sent, of a fee equal to the cost of maintenance of each child in the workhouse school of the same union. Several of the schools are for destitute Roman Catholic children; and before children can be sent to them, the school and its management must be certified to be fit for the purpose, by a local government inspector. The number of children in these schools is not large, but they are doing a good work in a quiet, unostentatious way, and although the standard of instruction and industrial training in them is not so high as it is in the district and separate schools, those which I have seen appear to be fitting their

inmates for the humble positions they are destined to occupy, in a fairly satisfactory manner.

On the 1st of June, 1878, according to a return moved for by Mr. Salt, Parliamentary Secretary of the Local Government Board, there were in England and Wales at that time 76 of these institutions containing poor law children, viz. :—

Number.		Boys.	Girls.	Total.
37	Industrial and Training Institutions ....	116	526	642
16	Institutions for the blind .....	161	131	292
11	"    deaf and dumb ....	110	64	174
10	"    orphans .....	382	309	691
2	"    idiots .....	47	27	74
76		816	1,057	1,873

Fifteen of the above are exclusively devoted to Roman Catholic children, viz., eight industrial schools, two institutions for the blind, and five for the deaf and dumb.

(d)—*Training Ships.*

One of the most satisfactory and successful of the methods adopted for the training of some of the children of the poor in the metropolis, is the solitary training ship which is exclusively devoted to that purpose. In 1870, the last report of the late Poor Law Board stated, "That a difficulty is often experienced in obtaining a satisfactory outlet for boys brought up in the district and separate schools, and it appeared to us that great advantage would result if a ship was founded in the Thames for the training of pauper boys from the metropolitan schools." They communicated with the Lords of the Admiralty on the subject, who expressed a willingness to grant the use of the "Goliath," then lying at Sheerness, for the purpose. A provision was introduced into the Metropolitan Poor Law (1867) Amendment Act, to enable the guardians of any union or parish, and the managers of any school or asylum district, with the consent of the Poor Law Board, to purchase, hire, or otherwise acquire and fit up one or more ships for the purpose of training boys for the sea service. The "Goliath" was accordingly obtained, a commander in the navy appointed to her charge, and she was anchored off Grays in Essex. There she lay until she was destroyed by fire in 1875. She was placed under the control of the managers of the Forest Gate District School, as two of the unions contained in the district were waterside unions, but she was available for boys from all the unions and parishes in the metropolis on the payment of a weekly charge per head sufficient to cover the actual cost of main-

tenance of the children, with a fair proportion of the charges incurred by the fitting up of the vessel.

In the first report of the Local Government Board it was stated that "a sufficient period has now elapsed since the establishment by the managers of the Forest Gate School District, of the 'Goliath' as a training ship for pauper boys, to enable an authoritative judgment to be pronounced. The results of this experiment have been in all respects most satisfactory. A marked and most encouraging improvement has been observed in the physical development, and in the bearing and general intelligence of the boys transferred to the ship from the metropolitan unions. The rapidity with which some, when transferred to the ship—town-bred boys of stunted growth—have increased in stature and in bulk, has excited general remark."\*

The purchase of a small sailing tender was sanctioned, to lessen the cost of conveying stores and water, and to exercise a beneficial influence on the boys in accustoming them to the sea, and in developing habits of practical seamanship.

The managers were also empowered to receive children from unions and parishes outside the metropolis.

The stunted growth and imperfect physical development of the London poor, led to a correspondence between the managers of the ship and the most experienced of the Local Government educational inspectors, in which the latter fully maintained his position, that to this cause alone was due the exclusion of most of these boys from the royal navy.† The boys sent to the "Goliath" were the pick of the London district schools, and all were rejected who, after careful medical examination, were found to be in any way unfit for a sea life, by reason of physical imperfections; and yet, even from this selection of the fittest, comparatively few attained the standard of growth and development, required by the naval authorities. As this is, in my own opinion, based upon a personal examination of several thousands of these children, the cardinal defect of the existing system of training in most of the district and separate, and of all

\* First "Report of Local Government Board, 1871-72," p. xxvi.

† In the prologue to an entertainment on board the "Exmouth," in December last, occurs the following passage:—

"And yet there's one thing saddens us, and that is—  
That we, with all our pudding, beef, and gravy,  
Can't reach the standard of the royal navy."

The annual reports of the successor of the "Goliath," the "Exmouth," a lecture by Captain Bouchier on the system of training adopted by him, read before the Society of Arts, 6th March, 1872, and the "Instruction Book of the 'Exmouth,'" 422, published by Harrisons, St. Martin's Lane, are deserving of careful consideration by all interested in the thorough training of the class to which these boys belong.



the other schools of every kind and class to which these children are sent, I dwell upon it, because, in this direction, the greatest change is required, as I shall show in my remarks when treating of the future of this important question.

In the succeeding year, a house on shore was hired to accommodate boys suffering from fever and other infectious diseases, such as are certain to occur when large numbers are congregated in a restricted space, without a more perfect system of sanitary arrangement and supervision than yet exists. The little attention paid, heretofore, to such matters, and the universal neglect in all classes of educational institutions in Great Britain of matters relating to the hygiene of schools and colleges, must ere long force its attention upon the public, in such manner as to provide the necessary remedy.

The "Goliath" continued to advance in the success of its training, until, on the 22nd December, 1875, it was totally destroyed by fire, in spite of every effort to save her, of both officers and crew. There were on board at the time 525 persons, most of them boys of tender age, and she lay in deep water and in a tideway; yet in cold winter weather, as a result of the admirable discipline maintained, and the excellent training which produced it, but 21 of the ship's company perished. More striking testimony of the value of such an institution, in capable hands, could never have been afforded in the even tenor of its ordinary life, from any length of time.

The behaviour of the commander and of the crew excited sympathy and admiration at home and abroad, and the incident takes rank, with many other episodes of similar character, which adorn the annals of our country.

I regret that the space at my disposal will not permit of my extracting from the official records, where they are buried so far as the general public are concerned, the very striking accounts of this incident, which I hold to be the best testimony that has ever been afforded, of poor law administration when directed in the right channel.

In addition to the proof by fire of the "Goliath" herself, the sailing brigantine attached to her as a tender, underwent as crucial a test by water, of the good stuff into which Captain Bouchier had converted his indifferent raw material. She was run down by a steamer in a strong tideway, and not a soul on board of her was lost, every boy having been able to save himself by his activity, and by the self-command which her excellent commander had instilled into them. If history be, as it assuredly may be made, teaching by example, do not these accidents of the "Goliath" and the behaviour of her lilliputian crew, taken from the very lowest stratum of our town population, show how valuable the annual supply of 40,000 or 50,000 of

these strays and waifs, who have been not inaptly termed children of the State, really are, and how they may, by wise direction and travelling out of the beaten tracts of the past, which are not now fit guides of the future, become the instruments of removing some of our social difficulties, in the best and most efficacious of all manners. As stated in the last report on the "*Goliath*," by Mr. Holgate, the educational inspector, who had made his annual official examination a few days before the fire:—"The instruction carried out on board "was not limited to ordinary schoolwork, but included navigation, "seamanship in all its branches, taught by carefully chosen instructors from the royal navy, swimming, drill, with or without "rifles, band, and singing; besides the industrial work of tailoring, "carpentry, and shoemaking; in addition, the boys had the great "advantage of learning to utilise their teaching by cruising in the "brigantine of 180 tons, attached as a tender to the '*Goliath*,' and "in which they were often away for days together, in all sorts of "weather."

About 1,645 boys passed through Captain Bouchier's hands in the "*Goliath*," and 1,086 in the "*Exmouth*;" nearly all of whom are known to have turned out well. The exact figures cannot be given, as the early records were destroyed with the ship. There are now 570 boys in the latter vessel.

(e)—*Boarding Out.*

There is, probably, no question connected with the education and training of the class of children to whom my paper refers, which has excited more controversy, than that of boarding out. Upon it the philanthropists and all who approach the question from the sentimental side, are hopelessly at issue with the economists, and those who are guided mainly or solely by public policy in the matter. To consider it fairly and with strict impartiality, it appears to me to be necessary that the real conditions of the question should first be clearly apprehended and formulated, and then that the rules of policy or propriety should be applied to its solution.

I shall attempt to do so, with the confession that it is always difficult to determine the manifold relations of any great social problem, within the limits of an aphorism or an epigram.

The question then is, how to educate and train the orphan and deserted children of the poor, in such manner as to take them permanently out of the class in which they are, with special reference to their own interests, and to the general administration of the laws for the relief of destitution.

To take these conditions, not in the order of their importance, but in that in which they are usually treated by the advocates of

the system, the advantages of the plan as regards the children, are—that it removes them permanently from the influence of the work-house and its associations; that it gives to those who have been denied them, from no fault of their own, the comforts, advantages, and priceless blessings of a home; that it places them on a level with the members of the class to which they really belong; that it affords them an education suited to the future position they are to occupy; that it gives them a fair start in life, without the pariah taint of pauperism; and that it is, therefore, the most humane, thoughtful, and considerate manner of discharging the duty of the State towards them. Pauperism and its surroundings are in fact the outcome of civilisation itself, and it should be the sacred task of society to mitigate as much as it can, miseries which are so much the creatures of its own creation.

These are, in a few words, so far as I have been able to gather from the published reports and writings which I have consulted—and they are legion—the cardinal conditions put forward by the earnest and philanthropic persons who are advocates of the system. The public policy of the proceeding is very generally disregarded by them, and, as usual, in this strictly sentimental view, the minor is preferred to the major.

In all social problems private must of necessity yield to public interests, however much apparent individual hardship may be the result.

From a poor law point of view, as stated by Professor Fawcett, in his admirable work on “*Pauperism, its Causes, and Remedies*,” it is an encouragement to improvidence, to immorality, and to other social vices; it rewards the improvident at the expense of the thrifty; it will introduce far greater evils than it will cure; and, it will exercise a demoralising influence which will most powerfully promote the future increase of pauperism.

After referring to the rules promulgated by the poor law authorities, which deserve to be more widely known than they are, this eminent Economist proceeds to show, that it places the orphan and deserted child in substantially a better position in life than the child of a labourer; that it encourages, by a pecuniary bribe, the neglect of an important part of the obligation of parents to maintain and educate their children during their lives, and to make provision for them after their deaths; that it is a powerful premium on illegitimacy, encouraging it in a manner worse than any of the conditions of the old poor laws, as shown by the statistics of the country from which it has been imported—Scotland; that it encourages desertion of the children born out of wedlock by their mothers, thus severing the strongest of all natural ties; that it is equally injurious to the class of legitimate children, in affording the strongest possible

encouragement to their desertion ; and, that it is inconsistent with a proper administration of the poor laws. He winds up by stating that those who discountenance it, must be content to bear the reproach of hard-heartedness for resisting the attempts of an unwise philanthropy and mistaken benevolence, "to benefit the "vicious and improvident, at the expense of the thrifty and "industrious."

An attentive study of the rules to prevent the abuse, and regulate the use of the system, shows how liable it is to the objections so forcibly stated by the authority above referred to, and how well nigh impossible it is to guard it from inherent dangers, beyond the pale alike of economic objections, and of philanthropic motives.

If it could be shown that the classes of children who alone can be allowed to be benefited by the system are neglected or prejudiced by the present management of district and separate schools, there might be some foundation for a small fragment of the philanthropic plan.

But, it cannot be denied that the mental and physical training are really superior ; that the taint of pauperism is as effectually removed ; that quite as fair a start in life, with better preparation for it, is given to them, and that the majority do well in their subsequent career, as I shall show anon. While this manner of dealing with them is strictly consistent with the correct cardinal conditions of the relief of destitution, it violates no principle of public morality, and is altogether removed from the dangers inherent in boarding out, as shown by the terrible scandals which occasionally come to light in its working.

The solitary advantage then seems to me to be in the cultivation of kindly feelings, and the love and affection of foster parents, the value and importance of which I have no desire to underrate, or to undervalue.

But, is genuine parental affection a purchasable commodity ; is the stray waif likely to supersede the child of the house in its manifestations ; and can it in any case be regarded as an equivalent for the better mental and physical culture of the school which is dis-severed from all pauper associations ?

An admirable word picture of the life and lot of the children, male and female, of the labouring classes, was painted by the late Sir J. Kay-Shuttleworth, in the report of 1841, and I fail to find in it any encouragement to bring the best and most hopeful classes of pauper children within reach of its freedom and advantages, such as they are. All parliamentary and other authentic reports of the agricultural population show how much improvement is required in their dwellings, manners and customs, training, and the other



conditions necessary to supplement their healthy, virtuous, and otherwise happy lives, to enable them to face with success the fierce struggle for life, the existence of which has been revealed by the prevailing agricultural distress and depression. Even from the sentimental side of boarding out, I am not convinced of its advantages, apart from all other considerations.

The question was forced upon the attention of the poor law authorities in 1869, who stated that for some time past an increasing number of applications had been made to them by boards of guardians for the practical adoption of that system, and that after much deliberation they had come to the conclusion that a fair trial ought not to be refused to the proposed change. They saw the serious risks attendant upon the practice, and the imperative need of all possible safeguards, to ensure the proper education and general well-being of the children. They sent one of their best and most experienced inspectors (Mr. J. J. Henley) to Scotland, to collect information as to its working in that country, and directed similar inquiries to be made in England and Wales, wherever the plan had been tried. Their reports were published in a separate parliamentary paper (No. 176, Sess. 1870). After detailing all their misgivings, they wound up by saying that they quite believed the system, if well conducted, likely to benefit pauper children in the highest degree; but that, if not watched with unremitting care, abuses of a deplorable nature might easily surround it, and result in moral and social evils of the greatest magnitude.

After accumulating, and carefully considering all the information they could obtain on the subject, they authorised the guardians of large town parishes and densely inhabited unions to board out their children in the country, and sanctioned non-resident relief to enable them to effect that object. They discouraged boarding out in towns, and framed the extremely stringent regulations hereinbefore mentioned, to prevent abuse. The order was addressed to forty unions and separate parishes, all more or less densely populated, and including the unions and parishes of the metropolis.

Thirty boarding-out committees, composed chiefly of ladies, were established under the authority of the Board, in some of the principal counties of England, and the system was fairly floated, and has continued in operation to the present time, the sanction of the Board being never withheld, when careful inquiry has proved all the conditions required to have been fulfilled.

As might be expected, grave cases of abuse have, from time to time, been brought to light; but, on the whole, the plan is reported to have worked fairly well. It has not, however, been very generally adopted by boards of guardians, as comparatively few of the children in the schools have been brought under its operation.

The latest return shows that, in 1879, 597 children, out of about 30,000, were boarded out, under the order of 25th November, 1870, from twenty-five unions.

I have not referred to or included in this statement children boarded out in their own unions, for whose better care regulations were framed, and published in the "London Gazette" of 14th September, 1877. It is so entirely a mere form of out-relief, as to place those children in an entirely different category from those dealt with under the order of 1870; and is not accompanied by the same safeguards to prevent abuse. Their numbers are considerable, and this manner of disposing of them is liable, in my opinion, to even graver objections, from a purely poor law point of view, than that mentioned above.

(f)—*District Schools.*

The remedy recommended for the defects of the old system of workhouse schools, and the removal of the abuses of the apprenticeship of pauper children, under the Acts on the subject prior to the legislation of 1834, was the institution of district schools, by the union of the authorities of several unions and parishes, in providing the buildings and agency for the accommodation of their children in large numbers, in buildings calculated to contain them; these buildings to be placed in healthy country places far away from the workhouses and the towns, and surrounded by a sufficient amount of cultivable land, to admit of farming operations being conducted on them.

It was considered that by this plan the maximum of good could be accomplished at the minimum of cost, and that suitable agency could be procured at a fair and not disproportionate outlay, to admit of the introduction of a well-devised plan of education and training.

It took some years of discussion, and the granting of compulsory powers, in the case of the Metropolis, to secure the general adoption of the plan even there. In several unions, however, the number of children was sufficiently great to justify the establishment of a separate school, so that up to the present time there are but eleven district schools in existence, viz.:—

	Average Number of Children.
1. The Central London, at Hanwell, formed by the City of London and St. Saviour's Unions .....	1,348
2. The South Metropolitan, at Sutton .....	1,580
(Taking the children from Camberwell, Greenwich, St. Olave's, Woolwich, and Stepney).	
3. Farnham and Hartly Wintney.....	127
(With children from Alton, Farnham, and Hartly Wintney).	

	Average Number of Children— <i>Contd.</i>
4. North Surrey, at Anerley .....	808
(To which Croydon, Lewisham, Richmond, Wandsworth, and Clapham, Kensington, and Chelsea contributed in 1878; but the two last have since withdrawn).	
5. South-East Shropshire at Quatt .....	152
(Have children from Bridgnorth, Cleobury Mortimer, Madeley, Scriven, Newport, Salop, and Shifnal).	
6. Reading and Wokingham, at Wargrave .....	185
(Have children from Reading and Wokingham).	
7. West London, Ashford, Staines .....	682
(Have the children from Feltham, Paddington, St. George's, and Brentford).	
8. Forest Gate, West Ham .....	545
(Fed from Poplar and Whitechapel).	
9. Walsall and West Bromwich .....	249
(Having children from Walsall and West Bromwich).	
10. Brentwood .....	535
(Supplied from Hackney and Shoreditch).	
11. The training ship "Exmouth," which is under the orders of the Metropolitan Asylum District.	

In the above schools there was an average daily attendance in the half-year ended on Lady-day, 1878, of 6,345 children, or about a sixth of the whole number of children in all the schools, at the time in question.

In these schools, which are all conducted on the half-time system, the mental training is in strict accordance with the standard for elementary schools of the education department, and very considerable proficiency has been attained in some of them, as high as the sixth standard. They are carefully inspected by a special staff of school inspectors, under the orders of the Local Government Board. Valuable reports by these gentlemen are contained in the annual returns of that department. The instructive staff varies in most of them, and a large part of the teaching is relegated to pupil teachers—a plan which I, as an old education officer, regard as an unwise economy, for such teaching can never be effective, especially with those children who need, but never get, the very best instructors who can be procured, viz., the younger children and infants. It would be out of place, even if I could find time for it, to discuss the very important subject of elementary education in a paper not specially devoted to it, as it covers a large area of ground, and would lead me far a-field in my exposition of the system in use in the poor law schools. The great and crying want of the country is a sufficient supply of competent teachers, and these

schools suffer from the want as much as any other educational institutions. A great outcry is always raised at any increase of expense in such matters, and boards of guardians are, naturally and properly, anxious to practise the most rigid economy in their establishments.

While lavish and unnecessary outlay should never be allowed for any purpose whatever, any expenditure which is really necessary to secure efficiency is, in reality, a profitable application of funds. However much they may cost, schools are less expensive than prisons, and tax the community less than does the vast amount of money required to maintain the expensive agency needed for the detection, prevention, and punishment of crime. The correction of most of our social evils will be better accomplished by education, than by any other agency; hence no amount of money required to place this on a thoroughly efficient footing should be grudged, however lowly the objects of it may be. The industrial training in the large district, and the more important separate schools, is stated, and appears, on the surface, to be sufficient, to secure its immediate object; but this seems to me to be more apparent than real. Tailoring, shoemaking, carpentry, smith's-work, and the menial duties of the establishments, form the staple of the training of the boys, with instrumental music in the larger schools. For the girls: sewing, mending, and making, cooking, and household work generally, chiefly occupy their time and attention. With the exception of instrumental music to fit the boys for enlistment into military bands, which is remarkably well taught, none of the instruction is as thorough as it might be made, if instructors of a higher order were entertained, and boards of guardians were not over anxious to launch their children in life, the moment they are considered in any way qualified, the demand being in excess of the supply.

Farm work is also, in some schools, well carried on, and is of great importance, both in supplying the wants of the institution, and in affording the most healthy and invigorating of all the varieties of manual labour. This subject is, however, scarcely carried sufficiently far to induce the boys to become agricultural labourers, except possibly among those who emigrate; the majority of them are consequently absorbed into the town populations.

All the essentials of physical training, drilling, gymnastics, the mast, and swimming are practised in the large schools, and in some few of them girls as well as boys are taught to swim, with remarkable success. If time permitted, I could show from a strictly hygienic point of view, how exceptionably valuable all of these are for the class of children referred to.

In the above respects, the best of our district and separate



schools, are in advance of nearly every one of the other classes of institution for elementary education in this country.

This is by no means an exhaustive account of the schools in question, and I do not intend it to be so. Should any of those who now listen to me desire to know more about it, I counsel them to visit the North Surrey District School, at Anerley, near the Crystal Palace, and see for themselves how by wise and liberal expenditure on the part of the managers, it has become a model of its class, in the health and training, mental and physical, of the children; how mental culture is pursued in strict relation to industrial training; how cardinal defects have been remedied, by a bold application of the remedies recommended; and to what an extent the correction of physical defects has been effected by exercises, as invigorating to the mind, as they are strengthening to the body, and interesting to the children themselves.

Another school, much farther away, at Swinton, near Manchester, as a model of what a separate school may be made in capable hands, is also deserving of a pilgrimage. The extent to which mental training and farm operations are carried in it are deserving of all praise; and the swimming of the girls and boys interested me much when I visited it. One little maid of 13 years swam once in a prize contest most gracefully, accomplishing a couple of miles without touching ground, and without the least sign of distress or fatigue; in fact, she declared herself ready and able to double the distance, had it been allowed. I dwell upon these matters because I hold them to be of priceless advantage, both in their relation to health, and as instruments of education. The drill and music of the boys inculcate order, obedience, unity of action, and the classical softening of the manners, which tempers the roughness of their natures. The swimming, musical and dumb bell exercises of the girls at Anerley, do the same for the other sex, and I am quite certain that if our educational authorities will condescend to take a leaf out of the poor law book, break away from their standards and traditions, and combine industrial and physical training with mental culture, they will improve the elementary education of the country to an extent which can be measured by no mere money standard.\*

*Cost of Education in the Poor Law District and Separate  
Metropolitan Schools.*

The cost of the schools still attached to workhouses cannot be ascertained from any of the published returns, as they are mixed

\* In the autumn of last year, at a meeting held at Lausanne, of the teachers and others engaged in primary education in Switzerland, the whole question of the urgent need of combining physical training with mental culture was discussed, and resolutions were adopted to increase the former, and diminish the latter. I

up with the expenditure of the workhouses themselves, in such manner as to be insusceptible of separation. One of the grounds for the retention of the children in the houses which weighs most with many boards of guardians, is its supposed economy. Whatever is inefficient and insufficient, is dear at any price, and of all possible methods of restricting necessary expenditure, the most unwise is in the primary education of the children of all classes. If by means of education crime can be arrested at its source; virtue and sobriety be inculcated, when the lessons are likely to be of greatest efficacy; habits of industry, order, regularity, and obedience be implanted at the ages when impressions are most lasting, and the ranks of the community can be recruited from year to year by a well trained little army of boys and girls entering upon a life of independence and self-support, what may not the future of the great nation to which we belong, become? If the great body of the people rise to the knowledge and conviction, that no amount of money should be grudged in so profitable an investment, a tithe of the sum wasted annually in drink, or in unprofitable foreign loans to impecunious and dishonest nations; or, even, if the amount of money now employed to the least advantage in many of our charitable institutions, from absence of organisation and judicious direction, were more wisely bestowed, it would be sufficient for the purpose.

The return (No. I of the Appendix) shows that in the twenty-eight years from 1851, the date of the paper of Mr. Fletcher, which is the last in the records of the Society on the subject, an annual average of 32,159 boys and girls under 15 years of age were under instruction in the poor law schools, at an annual average allowance from the parliamentary grant of 31,498*l.* towards the salaries of the teachers. The whole amount thus expended was 881,976*l.*

This represents but a single head of expenditure, and its mention shows how inadequate it is even for its special purpose, in the present state of the labour market. The time has certainly come when the value of the teaching element in the whole scheme of elementary education should be properly estimated; when the social status of the teacher should be raised; when he should belong to as distinct and elevated a body as the medical, legal, engineering, and other recognised professions; and when the great truth should be recognised, without question, that properly to instruct the young of all classes, needs the application of the highest powers and the best training in the teachers; when it is understood that all such imperfect agency as that of pupil teachers, and similar devices for saving money, are unwise and even mischievous errors; and that

have been unable to obtain a full report of the discussion, and of the resolutions, but the abstract published showed that the views entertained, were strictly in accordance with my contention.

in this teaching exists the best and most appropriate common ground for the work of men and women, each in their own sphere.

How few are able to write children's books of any real value ; equally few are those competent to instruct children properly, who are procurable now, on the salaries considered sufficient for the purpose.

In 1873 I was employed by the Local Government Board in examining into the cost of maintenance of the district and separate poor law schools of the metropolis, and my report on the subject was published as a parliamentary paper in 1876, and appended to the "Fifth Annual Report of the Local Government Board for '1875-76," No. 17, Appendix B, pp. 95—129. I selected a period of five years from 1867-73, as likely to give a more accurate result, than could be obtained from the expenditure of any single year.

The following are the figures which represent the average yearly number of children under instruction, the average gross annual expenditure, and the cost per child in the years mentioned :—

	Average Number of Children.	Average Gross Expenditure.	Average Annual Cost per Child.		
		£	£	s.	d.
St. Pancras.....	393	14,472	36	16	2
Forest Gate, "Goliath".....	387	10,432	27	—	—
St. Leonard's, Shoreditch.....	380	9,657	25	8	3
Central London.....	1,131	26,814	23	19	6
St. Marylebone.....	432	9,937	23	—	3
North Surrey.....	823	18,777	22	16	4
Bethnal Green.....	297	6,499	21	17	3
Holborn.....	431	9,265	21	10	1
Forest Gate School.....	79	16,490	21	—	2
Strand.....	371	7,757	20	18	2
South Metropolitan.....	1,265	25,623	20	5	1
Westminster.....	227	4,442	19	15	10
Islington.....	247	4,874	19	14	8
St. George-in-the-East.....	403	7,599	18	17	1
Lambeth.....	387	6,566	16	19	4
Mile End.....	273	4,517	16	10	—

The particulars of each year are contained in Tables II and III of the Appendix.

They include all expenses, except those of loans, and repayment of loans with interest. The causes of the variations of the cost are explained in the report, and the results must only be regarded as approximations to an accuracy which could not be attained, from the different manner in which the accounts were kept in different schools.

As years pass on, the loans are repaid with interest, and the expenditure is thus considerably reduced, the cost will of necessity be less than in the years mentioned. That considerable economy,

without diminution of efficiency, could be practised in the metropolitan schools by a better and more sensible system of management is certain, as I pointed out in my report.

In the Local Government reports of the two last years, returns of the expenditure in the same schools are published; and for 1878 the cost per head ranged from 34*l.* 10*s.* 9*d.* in the training ship "Exmouth" to 17*l.* 3*s.* 9*d.* in the Mile End school, giving a total expenditure of all the schools of 222,955*l.*, or 23*l.* 9*s.* 5*d.* per child, exclusive of loans and interest.

If time and space permitted, I should have been glad to have compared this expenditure with that of other schools of the same character, but of different classes. I must leave the contrast for others to expound and explain.

*Results of the Education of Children in the Poor Law Schools  
of all Classes.*

The results as regards the proficiency attained in the educational standards, and in such branches of industrial training as can be tested by examination, are contained in the returns of the poor law educational inspectors. The details are not published, nor are they of any special use for my paper, which is to ascertain the ultimate effect of the system, as shown in the ascertained success in life, of those who have been brought up in the poor law schools.

The reports of the inspectors, so far as they are published, show that, in many of the district and separate schools, a very high standard of proficiency is attained in education, and that, on the whole, the system works fairly well.

But, as respects the after career of those children, we have a much more satisfactory basis of comparison of the past with the present, in the facts and figures contained in parliamentary and other records.

In Mr. Fletcher's paper on the "Farm School System of the "Continent," read before this Society in 1851, the record of the number of juvenile criminals brought up in pauper schools who were in the prisons at home, was brought down to the year 1849. It was not only believed, but proven, that the results of the training of children in workhouses were then most disastrous, as may be ascertained by consulting the various official documents issued in connection with the great inquiry into the working of the poor laws in 1834, and in several subsequent years.

Following up Mr. Fletcher's figures, a return was moved for by Mr. Henley in the House of Commons, of the number of young persons in the workhouses of England and Wales in 1861, who had not been less than two consecutive years in those institutions, within the ten years ending on the last day of 1860, and who had



left the workhouse for service or other industrial occupation, with the number of those who had returned to the workhouse by reason of their own misconduct, the number of those who had returned from causes not involving their own misconduct, and the like particulars as to district schools. A summary of this important and interesting return forms Table IV of the Appendix. From this table it appears that there were in the workhouses of England 14,404 boys, and 12,957 girls, in all 27,361, of whom 836 boys, and 1,663 girls, in all 2,499, returned to the workhouse by reason of misconduct; and 1,264 boys, and 1,748 girls, in all 3,012, returned from causes unconnected with personal misconduct. This gives a percentage of bad behaviour, calculated on the whole number in the workhouse schools, of 5·8 per cent. of boys, and 12·8 per cent. of girls.

In the workhouses of Wales there were 529 boys and 439 girls; 20 of the former and 30 of the latter returned to the houses on account of misbehaviour, and 32 of the former and 43 of the latter from no cause of misconduct.

In the district schools, some of which had then been only partially and recently occupied, there were 777 boys, and 612 girls, in all 1,389, of whom 24 boys, and 63 girls returned on account of misconduct, and 63 boys, and 67 girls, from no fault of their own. This gives a ratio of failure of boys, 3·08 per cent., of girls, 10·2 per cent.

The accuracy of the return has been questioned on grounds which do not convince me of their validity, although they show correctly that mere figures are of little value, unless the facts\* underlying them are explained. It is undoubted that many children return to the workhouse from no fault of their own, hence I exclude them; but this does not apply to those the cause of whose misconduct is ascertained and recorded immediately on their return, and to probably not a few of the others, whose training has not fitted them for the positions they were sent to fill.

In the same year, the chaplain of the largest metropolitan district school stated in print, that 22·2 per cent. of the children sent to places from those schools had returned to them, and 8·6 per cent. to the workhouse. On the other hand, the chaplain of the Brighton workhouse, in comparing the difference of the system of educating the children in the separate school, which was established during his incumbency, stated, as published in Mr. Tuffnell's report for 1868, "that the character and history of the Brighton workhouse children for many years, is frightful to think of. I can remember as many as 44 persons, members at the same time of the able-bodied ward, all brought up in the workhouse schools, most of them thieves and prostitutes. Thank God, there is an

“end of this, or anything approaching to it. Of 50 girls sent out from our present school, I know of only one fallen; of about the same number of boys, the majority are justifying the hopes of their teachers, and the expectations of the promoters of this important charity. In Brighton, at least, society has shaken off a great scandal, and the ratepayers of the parish a heavy burden. Here, for the future, the pauper schools will no longer be the “nursery of pauperism.”

Again in 1862, the number of juvenile inmates of the prisons and reformatories of England and Wales was 19,955, of whom 15,751 were males, and 4,204 were females. Of the total number, 646, or 3·2 per cent., had been brought up in workhouse or district schools.\*

These 646 prisoners had been in workhouse or district schools for various periods, ranging from one day to five years and upwards:—

22	had been in school from .....	1 to 6 days.
48	„ .....	1 „ 3 weeks.
214	„ .....	1 „ 4 months.
79	„ upwards of ....	5 years.
25	for unascertained periods.	
<hr/>		
646		
<hr/>		

These again are not formidable figures, and for the great majority the schools cannot fairly be held responsible. In any case they indicate no wide-spread criminality, considering how many \* workhouse children are the offspring of members of the criminal classes.

Attempts are sometimes made to compare the social failures in higher grades of life, with those of workhouse children who have gone to the bad. These comparisons are at the best but vague guesses and impressions, with no substantial foundation, and based on conditions so entirely different as not to admit of comparison.

In Table V is a return of the total number of young offenders admitted into and discharged from the certified reformatories of Great Britain from 1854 to 1876, a period of twenty-three years. It is reprinted from the “Twentieth Report on Reformatory and Industrial Schools” (p. 206). The number of those brought up in poor law schools not being specified in this return, a special statement was called for by the Local Government Board for the ten years from 1868 to 1877. This forms Table VI of the Appendix.

This table shows, that of the children sent to reformatories in 1868-77 there had been:—

\* Parliamentary Paper 494, of Sess. 1862.

	Boys.	Girls.	Total.
<i>England and Wales—</i>			
In workhouses .....	362	120	482
„ district schools .....	80	32	112
	442	152	594
<i>Scotland—</i>			
In workhouses .....	25	15	40
„ workhouse schools .....	12	—	12
	37	15	52

As many thousands of children passed through these schools in the years in question, this is but a very small portion of them. The returns are not published in such forms, as to enable me to get at anything like even an approximation to the exact numbers representing the movement of this juvenile population; but, as the greatest number of the children are from its fluctuating element, and are the offspring in too many cases of criminal or degraded parents, I doubt if the schools are really responsible for the whole of even this small fraction. In some of the larger institutions as many as 500 of these children have passed in and out in the course of a single year—some of them as many as half-a-dozen times.

When compared with the prison returns of former years, these figures appear to me to prove indisputably, that the education of the children of the poor is gradually stopping the supply of criminals at the right end. As we gather from the first of these tables, from the large number of the juvenile members of the poorer population, the whole number convicted of crime amounted to only 25,612 boys and 6,200 girls in nearly a quarter of a century, and from the latter, that both sexes of those brought up in workhouse and poor law schools contribute a little over 600 in ten years, a very small percentage of either of those populations, the result must, I think, be considered of an encouraging and gratifying nature.

I am aware, however, that these figures are not rigorously exact, and that they constitute but a rough approximation to the truth, for there are many collateral conditions of age, parentage, the antecedents, and other circumstances of these children, which require to be known, before any strict deduction can be drawn from them.

It is, I think, much to be regretted that the legislature does not make it compulsory on all public institutions to keep their records on some simple uniform principle, which would gather together all the leading facts requiring to be known, and publish them from year to year in some easy form, to enable us to judge of the progress

we are making. It would entail a little trouble in the first instance, but would soon substitute a sound basis for the solution of these great social problems, in the place of the spasmodic and unsatisfactory manner in which we are compelled to deal with them at present, from the absence of continuous authentic data.

I have waded through the Poor Law and Local Government Boards' reports for many years past, to endeavour to compile from them such a collection of facts as to enable me to speak with confidence of the results obtained, but I have failed to find the necessary data. Here and there, scattered through them, are many carefully collected figures, which may be accepted as proofs, so far as they go, of the contentions of the observers. There can be no doubt, in any of these cases, of the high character, good faith, and qualifications for the task of those who have examined into the question; but, there is in some of them evidence of a strong personal bias towards particular views, and in others a controversial character, which somewhat diminishes their value.

It would be a waste of time to attempt to reduce this undigested mass to order and system, or to deduce from it strictly logical conclusions, as all sound data of comparison on a sufficiently extended scale, are absent. I shall, therefore, content myself with selecting some of the best authenticated figures, and leave you to form your own judgments as to how far they can be considered to cover the whole ground. In the consideration of all social questions there are so many sources of fallacy, so much room for falsification and concealment, and so many conditions for which no moral barometrical scale has yet been constructed, that any conclusions arrived at must be regarded rather as endeavours to arrive at the truth, than as proofs of the truth itself.

I have taken the figures from the latest reports, as they most correctly represent the present state of the poor law schools.

In the report of the Local Government Board for 1872-73,\* Mr. Bowyer, one of the oldest and most experienced of the poor law educational inspectors, collected in the midland districts, from returns procured from the schools, particulars regarding 1,009 boys and 1,170 girls, in considerable detail. An abstract of these figures is subjoined:—

\* Pp. 101 and 102.



Total Number.	Number of Returns to Workhouse.	Number who Returned.	Causes of their Return.	Condition in Life, and Repute when last heard of.
<i>Boys—</i> 1,109 ....	176	157	{ Serious faults 24 { Slight „ 21 { No fault .... 99	{ Doing well ..... 1,008 { Not doing well .. 51 { Dead ..... 11 { Not known, or } still in school } 39 Total .... 1,109
<i>Girls—</i> 1,170 ....	417	303	{ Serious faults 55 { Slight „ 47 { No fault ..... 201	{ Doing well ..... 987 { Not doing well.. 98 { Dead ..... 15 { Not known ..... 70 Total ..... 1,170

The same inspector collected in the preceding year figures regarding 657 boys and 621 girls placed out in eleven unions, of whom 605 of the former, and 498 of the latter, were reported to have done well. In four other unions, of which the returns were mixed, of 261 children of both sexes, 248 had done well.

The most valuable, interesting, and instructive report ever written of the training of girls under the poor law system, is that of the late Mrs. Nassau Senior, published in the report of the Local Government Board for 1873-74.\* I accompanied her in her visits to some of the metropolitan and other institutions, and can testify to the singularly careful and conscientious manner in which she conducted her investigations, and the almost painful anxiety she exhibited to avoid acquiring erroneous impressions, or arriving at incorrect conclusions from false premisses.

Although I dissent from the main conclusion at which she arrived in favour of boarding out, I think she hit the blots in the system of large schools for girls, and that her proposal to substitute small schools for large ones, and to classify the schools and their inmates with regard to girls, was, in principle, thoroughly sound.

Information was collected by her, or for her, of girls sent out to service from the metropolitan schools in 1871 and 1872, of 245 girls from district, and 245 from separate schools. No notice was taken of girls sent to their families, and 74 girls from district and 106 from separate schools were omitted from the record, as incorrect addresses were given, the families had removed, or the letters were unanswered.

\* Appendix B, pp. 311—394.

Of those personally visited, the classification was as follows:—

	Class.	District Schools.		Separate Schools.	
		Number.	Per Cent.	Number.	Per Cent.
Good .....	I.	28	= 11'42	51	= 20'81
Fair .....	II.	64	= 26'12	81	= 33'06
Unsatisfactory .....	III.	106	= 43'26	82	= 32'46
Bad .....	IV.	47	= 19'08	31	= 12'65
		245	= 99'88	245	= 99'98

If all the published tables are scrutinised carefully, it will be found in almost every instance, even the most favourable, that there is a larger proportion of failures among girls, than among boys. The reason why it should be so, and why aggregate training is more dangerous to girls than to boys, is clearly shown in Mrs. Senior's remarks, and these I regard as one of the most valuable features of her report. No *man* could possibly approach the question with so thorough a knowledge of all its bearings, and no official inquiry that I know of, has ever been conducted in so thoroughly careful and painstaking a spirit, as that of the gifted and lamented lady to whom I refer.

In the report for 1875-76, the Rev. Dr. Clutterbuck, a Poor Law School Inspector, collected figures respecting the children sent to service during the preceding five years, from all the Unions of the Western District.

1	2	3	4	5	6	7
Number of Unions.	Total Number Sent Out.	Reported as still in Place, or Doing Well.	Doubtful or Bad.	Returned to, and still in the House.	No Information as to Present Condition.	Dead.
England 145	{ Boys 2,329 Girls 2,086	1,309 1,102	96 128	66 83	839 756	19 17
Wales .... 39	{ Boys 616 Girls 568	348 297	30 19	11 18	199 232	8 2
Total .... 184	5,599	3,056	273	178	2,026	46

Dr. Clutterbuck very candidly states, that these tables are based solely on figures supplied by the house masters and matrons, but gives the reasons for which he considers them reliable, and further on states that the "pauper taint," the "workhouse surroundings," may be summed up in the expression, adult influence: hence he thinks that the schools should be separated from the workhouses. The virtues of the workhouse school proper in small unions, the

same inspector attributes to the *individual* treatment, which is possible with small numbers.

In the report for 1876-77, are special and interesting reports on the results of workhouse school education, by Messrs. Murray Browne and Davy, general inspectors of the Local Government Board, and Mr. Mozley, one of the inspectors of workhouse schools.

Mr. Murray Browne's report is a continuation of one made by him in 1874. He selected four unions as the subject of his inquiry—Chester, Tarvin, Hawarden, and Wrexham. These unions comprise together an area of 185,268 acres, and a population of 120,450.

He found in the four workhouses but 11 paupers who had been brought up in workhouse schools, of whom 5 were imbeciles, 3 more or less disabled by chronic disease, and 3 who, having been brought up in them as children, were then inmates through their own fault.

He then investigated the history, prior to their leaving the workhouses, of all the children who had been in them for more than two years, and who had then been in service for two years and upwards, and whose ages averaged between 16 and 17 years. Of the total number answering those conditions, there were 49—30 boys and 19 girls. Of the 49, 3 were unable, from physical causes, to support themselves, and 8 more had not been trained. Among the 38 remaining, of the 21 boys, 1 had failed, giving a ratio of 4.76 per cent., and of the 17 girls, 1 also had failed, in the proportion of 6.35 per cent., being a general ratio on the combined figures, of 5.26 per cent. Adding these figures to those of his former report, of a total of 93 boys and 84 girls, 2.15 per cent. of the former had failed, and 9.52 per cent. of the latter—a mean ratio of 5.65 per cent. in the boys and girls combined.

Messrs. Davy and Mozley visited 52 children brought up in the Swinton schools, taken at random out of a list of 97 boys, and 74 girls. According to their scheme of classification, of the 32 girls, they found—

21 very satisfactory.  
11 satisfactory.  
0 unsatisfactory.

and of the 20 boys—

13 very satisfactory.  
7 satisfactory.  
0 unsatisfactory.

These figures are evidently too small for any sound deductions to be drawn from them, but I think that the whole of the figures, now grouped together for the first time, show, that the state of the

poor law schools is no longer the same as that so strongly denounced for some years after the passing of the Poor Law Amendment Act of 1834, and that the dispauperisation of the bulk of the children termed pauper, is real and satisfactory.

### III.—THE FUTURE.

If the present has been so fairly successful in its instructional results, and in its dispauperising effects, in district and separate, and in some of the workhouse schools, why not extend the best parts of the system, instead of devising, what in England are still regarded as new and untried ways, of attaining the same end, which may possibly entail greater cost?

I will endeavour to supply the answer.

While I approve of any system which takes the children out of the workhouses, trains them to earn an honest livelihood in positions suited to their class, dispauperises them, and in some cases enables them to rise entirely out of the class in which they start, I am of opinion that sufficient experience has now been acquired of the large district and separate schools, to show that there are some defects inherent in, and inseparable from them, which can and ought to be remedied in all future schools separated from workhouses.

In all schemes of education the unit is the most important factor, and in all forms of society, the family is the foundation, on which we should endeavour to build.

The more we depart from these cardinal conditions, the more likely we are to err, and although economic considerations may compel us to modify them, they should be as steadily kept in view in the education and training of the children of the State, as financial circumstances will allow.

Too much praise cannot be accorded to the late Sir J. Kay-Shuttleworth and Mr. Tuffnell, for guiding public opinion and the legislature, in the greatest advance yet made in the elementary school system of the country, and I should not counsel the smallest retrocession from the position attained.

But, some careful, far-seeing observers, pointed out at the time grave objections to the plan of collecting the poor law children in large numbers, and in big buildings. The experience of the third of a century, in which some of them have now been in active operation, has proved that those objections were based on correct views.

There is a well-defined limit beyond which the number of children under the control of a single head, cannot be placed with safety. The grouping of large and unmanageable numbers in school rooms, day rooms, and dormitories, causing undue pressure



upon a limited area, introduces new conditions of health and disease, which demand the most serious care and consideration. From it have resulted outbreaks of ophthalmia,\* skin disease, and similar very destructive and injurious consequences, the results of some of which are life-long in their prejudicial influences. The worst forms of scrofulous degeneration have thus become crystallised and intensified, and are likely to influence generations yet unborn, in ways that will render them a permanent burden upon society, without any misconduct or malfeasance on the part of their parents.

So much for the physical aspects of the question.

As regards its moral side, the objections appear to me to be quite as strong. The numbers who have to be dealt with renders the study of individual character and personal proclivities, impossible to the immediately responsible authority, of any of these overgrown schools. The absence of this individuality in the earliest and most plastic period of life, I hold to be fatal to any sound scheme of education in its true meaning. Education is not the teaching of large bodies of children to act with the precision of machines, or the cultivation of minds in the mass, for in the process the weakest go to the wall, and the selection of the fittest is by no means secured. The formation of the individual is the true aim and object of all education, and this can never be accomplished by the herding together of children, any more than it can be in dogs or in horses. The physical defects of the children influence their whole lives in their higher relations, and, although some of them attain a good position in the educational standards, as a body they are as apathetic, dull, and helpless, when first sent out to earn their livelihood, as they are stunted in growth, and ungainly in gait and manner. Their powers of perception and observation are, in numberless cases, scarcely developed at all, and certainly in no way proportioned to their book knowledge. All persons engaged in aiding children to emigrate, and the rules for boarding out, show that it is useless to attempt to correct bad habits, and to form character after 10 years of age; yet, it is during the earliest period that the children are under the charge of subordinate agents, who possess neither the training, the knowledge, nor the experience necessary to develop all that is good in them, and thus to correct their faults.

The domestic economy of a multitude, and their implicit reliance on all their wants being supplied with unvarying and mechanical

\* *Vide* reports of Dr. J. H. Bridges and of Dr. Mouat on Ophthalmia: "Third Annual Report of Local Government Board," 1873-74, Appendix B, pp. 210—245. Also report of Professor E. Nettleship, F.R.C.S., "Report of Local Government Board," 1874-75, Appendix B, pp. 55—168, the most able and exhaustive account of the subject in print.

uniformity and regularity, are destructive of the individual energy and prescience, which ought to be cultivated at the earliest possible age. It is this quickness of observation, readiness of resource, and adaptability to new circumstances, which sharpens the wits of the street arabs and *gamins*, and renders them, unkempt and untrained, so superior in the art of taking care of themselves, to the well-taught workhouse boy or girl. This helplessness in novel circumstances is described in more graphic language than I can employ, in one of the most deeply interesting and painful narratives I have ever read; that of a successful workhouse boy, recorded by Mr. Tuffnell in his last official report.\* It is also, I am afraid, a truer picture of the sad realities of the workhouse lives of children in many more of those institutions, than those in which it occurred.

The cooking and laundry work of these great places, in which, from economy of cost and labour, the preparation of the food and the cleansing and getting up of the linen are of necessity more cheaply done by machinery, are no fit training for servants of all work, or for poor men's wives; nor are the employment of the elder girls in kitchens, for the preparation of the officers' food, and washhouses for the getting up of their linen, &c., well suited for the same purpose.

The nature of the industrial training generally, of the great schools, does not appear to be sound or judicious; in the smaller workhouses it is practically absent. There is a great deal too much of tailoring and shoemaking, and of cleaning, scrubbing, and keeping the huge rooms in order, and too little of carpentry, smith's work, printing, farm and garden labour, and such industries as develop bone and muscle, while they cultivate the understanding and produce ready-handiness. Boys should be taught to cook as well as girls, and all strictly domestic operations should be assimilated as much as possible, to the circumstances of poor men's homes. This cannot, I am of opinion, be accomplished satisfactorily in such schools as those I am considering.

Another plea, strongly urged, of the superiority of these schools, is the low death-rate, and consequent supposed immunity from most of the ills to which the children of the poor are liable. This I hold to be a fallacy. It is undoubted that the death-rate is very low compared with that of the poorer classes in the dens and overcrowded abodes of all our great cities, and even of those in the cottages of many of our villages, which are known to be in an undoubtedly unsatisfactory state, as regards their healthiness. It could easily be shown why it should be so, but that the death-rate is lower than that of other schools in which care is taken of the health of

\* "Report of the Local Government Board" for 1873-74. Appendix B. No. 17, pp. 247—259.

children, and their ailments are attended to at once, I altogether doubt and disbelieve. I know of public institutions for European orphans in India, with the management of some of which I was associated for many years, in which the death-rate was much lower. In them accurate records have been kept for many years, and there was no room for conjecture on the subject. In the Little Boys' Home at Farningham, in children not specially selected, I was informed that there had been only 4 deaths in fourteen years among an average annual population of 300, and of those but 1 death was from disease acquired in the institution. So far as I have been able to ascertain, the deaths in the farm schools of the continent, some of which have been established for more than a century, are fewer even than those which have been ascertained for similar numbers in England. The most authentic figures regarding the metropolitan schools are those of Dr. Bridges, who reports, that (excepting the deaths of infants under 2 years of age at the Marylebone schools), the total number of deaths among the children in 1873 was 102, which gave a mortality rate of 12 per 1,000. Taking the death-rate of the children in the whole of the metropolis at the corresponding ages (2 to 15), the ratio was 14·1 per 1,000. There is, however, no real ground of comparison between them. The fact is that the figures have not been collected with sufficient care and accuracy, and with an analysis of all the collateral and surrounding circumstances, over a sufficiently extended period, to determine the question further than that the death-rate is really low, but not so low as to cause surprise, or to justify the extension of the system on that ground. That it may be still further reduced, when the hygiene of our schools is better understood than it is at present, I believe, with Dr. Bridges.

A far better test of the unwholesomeness of the aggregation of these children is the sickness rate, which I have ascertained to be, in some cases, as high as 25 per cent. of the inmates. Ophthalmia, itch, and a multitude of affections of the skin and scalp, have, to my certain knowledge, had a firm hold of some of these schools for a lengthened series of years. It is simply impossible to gauge accurately the amount of misery caused both in early and after life, by defects and partial or total loss of sight, scrofulous degenerations, and the continuance and increase of hereditary and transmitted defects, all of which are only susceptible of mitigation or removal at a very early age. The stunted growth, impaired general health, and feeble bodily powers of too many of such children, are not removed or corrected by massing them in large buildings or bodies. I have no desire to over-rate or to attach too much importance to such considerations, if it be possible to do so; but I do deem it necessary to point out the existence of the evil, and to suggest the remedy for its removal: and, that it can be removed, I



entertain not the least doubt. It is not alone by ascertaining the greater or smaller number of failures in this class, that the virtues or defects of the system can be fully ascertained and explained. There is a large and possibly increasing factor of imbecility, idiocy, and nervous disorders generally, and some of the more immediate results of scrofula at the critical periods of life, which may be due to the insanitary conditions of this overcrowding, and which is not touched by any inquiry yet made. There is still another objection, which is difficult to touch upon, and yet which cannot be altogether ignored, and that is the habits of immorality which are inseparable from accumulating children in dormitories which cannot be properly controlled and watched at night, when they exceed 50 in number. I have seen as many as 174 in double beds in a single room, in one of these schools. It is true that the children were young, but the precocity in vice of many of the casual children has been frequently remarked; and I have seen too much of it myself, to doubt its existence. To ignore social evils, is not the right way to remove them.

Now, what is the only valid reason which has ever been assigned for these unnatural and unhealthy accumulations? It is solely and entirely one of economy, and a more pernicious and unsound reason could scarcely be advanced.

The saving in the cost of management and establishment by spreading it over a larger surface is purchased, I think, at too heavy a rate to countenance its extension to the future separation of schools from workhouses; for I hold that, in spite of its many and great advantages, it is responsible for evils, which no plea of economy should be permitted to extend.

The remedy then is to break them up into smaller and more manageable bodies, and so to subdivide them, that while the study of individual character and domestic training can be carried on with as fair an approach to a home as can be secured in such circumstances, the elementary education, industrial training, swimming, gymnastics, and all the advantages of the district and separate schools, can be carried to as high a pitch of perfection, as has been accomplished in any existing school. That this can and ought to be done in a school of 500 or 600 boys and girls, as well as in one of 1,500 or 1,600, I hold to be beyond denial. That it will cost a little more in establishment is probable, but that the cost will, or ought to be immoderate can, I think, be shown to be incorrect.

The published tables show that there are many thousands of children still in the workhouses, who would be better separated from them, and to them I intend my remarks to apply.

In a letter, dated May, 1873, addressed to Mr. Stansfeld, then President of the Local Government Board, and to the chairman of



a Welsh board of guardians, Mr. Andrew Doyle, late an Inspector of the Board, suggested the establishment of district schools on the Mettray system, in some of the Welsh Unions under his charge. He believed that, admirable as are some of the separate schools, it could hardly be doubted "that a great improvement would be effected in the system upon which such schools are organised, if instead of being associated in large numbers, the children could be separated into families; if, for instance, for huge buildings in which several hundred children are massed together, you could substitute a village in which they might be distributed in cottage homes, leading, as nearly as may be, the lives of the best class of cottagers' children." This system he studied at Düsseldorf and Mettray, and found that its characteristics are based on family organisation, and agricultural labour. Mr. Doyle also referred, quoting largely from Mr. Fletcher's paper, republished by this Society last year, to the farm school system of the continent originated by the celebrated Pestalozzi in 1746, or nearly a century and a-half ago. For all the deeply interesting details contained in these reports, I must refer to the documents themselves, which are well deserving of careful study.

I, too, some years before Mr. Doyle, studied the system at Mettray, with M. Demetz, and examined his colony most carefully, when I was in administrative charge of the prison department of Bengal.

The outcome of Mr. Doyle's proposal has been the establishment of four of these cottage homes in Wales. They are in full operation, and when I visited them last year, promised to answer the anticipations of their founders. They have, however, been too recently at work to permit of any judgment being yet pronounced upon them. Similar schools have been sanctioned for West Derby, West Ham, and Bolton.

More recently the Birmingham, and Kensington and Chelsea guardians, have adopted the village home system for their children, and the former commenced work at Marston Green a short time since. Each of their schools is for about 600 children, and, if all the means and appliances necessary are provided, as they doubtless will be, we shall soon have an opportunity of comparing the system with that in use, on a sufficient scale to determine which is best. Both are mixed schools for boys and girls, as all institutions which profess to imitate the family system, ought to be.

In 1878, the late Captain Bowly, of the Royal Engineers, then an officer of the Local Government Board, and I, were directed to visit certain schools worked on the home and cottage system, and to report as to how far we considered the system to be

applicable to the education and training of the children of the poor. We visited six institutions answering the above conditions more or less, and although none of them are strictly comparable with poor law schools, we had no difficulty in arriving at the conviction that the system itself is perfectly capable of adaptation to, and adoption by the poor law department. Our report was published as a House of Commons Return, No. 285, of 1878. The report is accompanied by plans of the schools referred to.

As to cost, we ascertained that at the Princess Mary's Home, at Addlestone, the cost per child, on an average of 155 girls, in 1876, was 15*l.* 15*s.* 6*d.*

The Little Boys' Home at Farningham, on an average of 310 boys, 20*l.* 8*s.* 11*d.*

Philanthropic Farm School at Redhill, on an average of 298½ boys, 23*l.* 17*s.* 9*d.*

In all the other institutions visited, the actual money outlay was so much supplemented by donations of various kinds, as to render it impossible to gauge the individual cost with exactness.

Each pair of cottages at Addlestone, for 10 children each, cost 400*l.* to build; and one approaching completion, in a block for 30 children, in three compartments, cost 1,000*l.* in erection.

At Dr. Barnardo's Village Home for Female Orphans, at Ilford, each cottage for 20 children, cost 500*l.*, which included its share of the cost of the general drainage system.

At Redhill, the separate houses contain 60 boys in each; when originally constructed for 50 boys, the cost was about 1,200*l.*, and the subsequent enlargement to hold 10 more boys, about 400*l.*

It is obvious, however, that all estimates of the cost of buildings must vary so much from the differing circumstances of time, place, price of material, state of the labour market, &c., that no fixed scale of cost can be determined. The price of land varies even still more. But, of one thing I am certain, and that is that the complete organisation of a mixed village home school for 600 children, complete in all respects for education and training, need not, and ought not to cost much more than a school of similar dimensions for children on the aggregate system. If the moral and material superiority of the family, over the aggregate system could be gauged by any mere money standard, the question of cost would at once be abandoned, as undeserving of consideration.

Again, with respect to the extent and nature of the establishments required to manage such institutions, the outlay would be as low in the one as in the other, if proper, and properly paid agency, were employed in both.

Nay, I am disposed to go further, and to maintain that if

the main objection to the cottage home system is that of cost, on the ground that you cannot for any reasonable expenditure form educational villages on the monstrous scale of some of the schools holding from 1,000 to 1,600 children, I should regard it as the best possible reason for preferring them.

I have not been able to ascertain the exact cost of ground, buildings, furnishing, and all other particulars connected with most of the poor law cottage home schools, which are in course of construction.

The cost of the Kensington and Chelsea Village Homes at Banstead is 60,000*l.*, to which 10,000*l.* must be added for the purchase and laying out of the grounds and playgrounds.

The village consists of 8 cottages for boys, 12 for girls, and 2 for probationary purposes, in addition to an infirmary, an infectious hospital, all the necessary schoolrooms, workshops, offices, and a chapel to hold 400 persons.

The institution is calculated for 672 children, and contains many requisites not usually provided in schools. The architects are Messrs. A. and C. Harston, who have already constructed some excellent poor law buildings. The whole outlay will be at the rate of about 100*l.* a child—all told.

The Marston Green Schools are situated about seven miles from Birmingham, and cost for buildings, including roads, architects' fees, 32,190*l.* 19*s.* 5*d.*; furnishing (not yet complete), 2,394*l.* 8*s.*; and purchase of land, 4,715*l.* 11*s.* 6*d.*, the quantity of land being 44 acres 3 rods 1 yard.

The homes are fourteen in number, seven for boys and seven for girls, divided in the centre by the workshop block, and swimming bath, &c. Each home is complete in itself, and has dormitories for thirty children, ten in each, with kitchen, scullery, day room, store room, and the abode of the house father and mother, with all necessary out offices, and play yards.

The workshops make provision for shoemaking, tailoring, printing, carpentry; and on the land provision is made for farming operations.

The architect is Mr. Homeyard, and the whole cost per child will be about 100*l.*

Some of the Welsh cottage homes have been built for less than the above, but they are not so complete. A less costly plan of building might doubtless be adopted, but what is most appropriate is probably the least expensive ultimately. I myself personally advocate much more simple and inexpensive structures for schools, hospitals, workshops, school chapels, and all places where large numbers either dwell or assemble, on grounds of health as well as of economy. But this opens up a large question of an entirely

different character, which this is not the place to discuss or consider.

If the exact figures representing the cost of the great district and separate schools, as well as that of the land on which they are built, could be got at, together with the not inconsiderable outlay which has been found necessary to make some of them healthy, I doubt if the system would be found to be much, if anything, cheaper than that of cottage homes.

But, be that as it may, if the latter were twice as costly, I should still prefer it, for reasons which I believe to be unanswerable from the stand points of individual culture, health and morality.

### *Educational Standards of Elementary Instruction.*

And now, before summarising my conclusions on the whole subject, I wish to take advantage of this opportunity, as an old educationist, who has occupied the executive offices of professor, principal, and examiner, and the administrative control of the public instruction of a province numbering 60 millions of people, to say a few words on the standards of instruction adopted for the elementary education of the children of the poor in Great Britain; and on one or two collateral subjects.

The standards of the New Code of 1878 do not appear to me to be altogether judicious, or well calculated to develop in the right direction, the intelligence of children of the poorer classes, who are to gain their livelihood by manual labour, or in the various positions they are destined to fill. An adequate knowledge of reading, writing, and arithmetic are doubtless necessary, and so may be the moderate amount of history and geography contained in the code; but, they are at best but a deadly lively routine of study, unless supplemented and relieved by some acquaintance with the nature of the objects by which they are surrounded, and some knowledge of their properties and uses. The manner in which the three R's are usually taught in those schools appears to me to be simply deplorable, and their relegation to pupil teachers and all such ill-paid, unpaid, and incompetent agency, a grave error.

On the whole, I prefer the Dutch standard of elementary instruction, to our own.\*

The Kinder-garten system for infants, and a more varied and interesting course of instruction for those more advanced in age, with as little as possible of poetic recitation and political geography,

\* The Dutch system of elementary instruction, with some additions as to physical training, appears to me to be better suited for our poor law schools, than our own educational standards.

In the Dutch law of 1857, which, I believe, is still in force, it is divided into ordinary, and more extended instruction.



and the banishment of grammatical analysis, would be of far more use to them. As soon as they can read, write, and cipher decently, and learn something exact about the world in which they live, their subsequent book learning should be strictly and immediately associated with their technical education, all such instruction being, from first to last, on the half-time system. If these schools were properly guided, boards of guardians were not in such a desperate hurry to turn out their children immature in mind and body, and properly trained teachers were imperative, there is scarcely a child of average capacity, that ought not to be brought up to the highest standard necessary, by 12 years of age. What is now, on a thoroughly *lucus à non lucendo* principle, denominated industrial training, should be placed on an entirely different footing, and carried on for at least two years, with all the means and appliances necessary to render it effective, and with competent agency, if it can be found.

I would that the time allowed, and the space you can give me in the *Journal*, permitted of my pointing out to you how this is managed in Holland, in what are called there "Ambacht Schools." These are industrial schools, based on the joint stock principle, in which special instruction is given in trades and handicrafts. The funds of these industrial school societies, are derived from the contributions and yearly subscriptions of the shareholders, gifts from those who take an interest in their objects, legacies, bequests, and assignments, interest, income from property, school fees, and miscellaneous receipts.

Ordinary instruction includes:—

- a. Reading.
- b. Writing.
- c. Arithmetic.
- d. The rudiments of morphology (knowledge of form in general).
- e.        "       the Dutch language.
- f.        "       geography.
- g.        "       history.
- h.        "       natural philosophy.
- i. Singing.

The more extended instruction is considered to include:—

- k. The rudiments of the modern languages.
- l.        "       mathematics.
- m.       "       agriculture.
- n. Gymnastics.
- o. Drawing.
- p. Needlework.

Keeping technical instruction and industrial training apart, a better graduated system could, I venture to think, be fashioned from this, than that represented by our six standards.

From the ordinary instruction in poor law schools, most of the geography, history, and natural philosophy should be eliminated; but to it should be added music, physical exercises, and industrial training in the widest sense for both boys and girls. By a properly graduated system of schools, a much higher order of technical education might be given to all the more promising boys and girls.

These schools are of a higher order than any similar institutions in England, and I know of no good reason why such schools should not be established in all our great industrial centres, on the co-operative principle, which, when correctly applied, is one of the best of all instruments of self-help in such matters.

One or more such schools formed in connection with the poor law administration, to which the most promising of the pupils in our present district and separate schools in all parts of the country might possibly, under the existing law, be transferred, would be of incalculable benefit in training those of our orphans and deserted children who exhibit high and special aptitude, to become skilled artisans.

Or, what would be better, and it may possibly be legal, to pay for them from the rates, under the provisions of the Elementary Education Act of 1876, in technical schools established in the centres to which the children themselves belong, Manchester, Birmingham, Leeds, Bradford, Sheffield, Liverpool, and other important places of similar character.

Why rely upon great corporations and State support, for what can be much better done by the people themselves, in the way of technical education, of which so much is said and written just now?

#### *Army and Navy Schools.*

It has been strongly recommended by some persons, that special training schools for the army and navy should be connected with the poor law administration. A majority of the boys of the "Goliath" and "Exmouth" already pass into the merchant service, and some into the navy, and many boys from the schools enter the army as musicians; but, even if their stature and growth admitted of any large number being found fit to shoulder the rifle or to mount the mast, it would scarcely be right to put a pressure upon them or to compel them to do so, should they have elected to enter such special schools at an age when they are not capable of fixing their own destiny, as in the case of orphans and deserted children, who have no near relatives to guide them.

To train and educate them thoroughly, is the best possible preparation for either of those callings, and it is wise to leave the ultimate choice to the boys themselves, when they are old enough to decide, as is done at present; for there is quite enough of the old spirit of fighting among them, and no lack of attraction in the drum and the blue jacket, to entice those who have a fancy for them, and are anxious to follow those careers.

#### *Casual Children.*

The number of these is very great, as shown in the few parlia-

mentary returns, in which an attempt is made to specify them. These returns are of too old a date, however, to be of any present application; yet in the workhouses of England and Wales, from 700 to 800 vagrants under 16 years of age, were relieved nightly some thirty years ago, when a special inquiry was made on the subject. The children of Scotch parentage were fewest, and those from Ireland most numerous in the tramp wards at that time. The remainder of the children, those of the poor in receipt of out-door relief, are still more numerous: hence the question is one which ought to be fairly faced, however difficult it may prove of solution.

A more difficult matter is how to deal with the children of the vagrant and profligate fathers and mothers, without causing greater evils than would be remedied, by the State taking charge of them, and relieving their natural protectors from the burden of their maintenance. I confess that I do not see my way to a satisfactory solution of the difficulty.

### *Summary.*

To sum up then briefly, what I have attempted to prove in some detail, I am of opinion:—

1. That most of the flagrant abuses of the manner in which the children of the poor were dealt with under the Poor Laws prior, and for some years subsequent, to the passing of the great Act of 1834, have been remedied, by the separation of many of the schools from the workhouses, and by the generally improved arrangements of the poor houses themselves.

2. That a very large number, probably a majority, of the children educated in the schools succeed fairly well in life, and are apparently dispauperised, so far as they have been traced.

3. That a majority of the orphan, deserted, and casual children of the poor are still, however, retained in the workhouses. Although these have ceased to be training schools of crime, their inmates are not proper associates for the young, and the surroundings and atmosphere of such places are in every way undesirable for children.

4. That the education and training in the small schools of workhouses are, of necessity, incomplete and imperfect, from the impossibility of obtaining competent agency on the salaries which can be allowed. Their sole feature of excellence is the amount of care and attention, such as they are, which can be bestowed on individual children.

5. That the provision of a home, which is the principle on which boarding out is based, is sound in itself, and that it is attended with benefit to the individual, when carefully watched and controlled; but, that it is liable to so many abuses difficult to

detect and prevent, and is so entirely opposed to a sound system of relief of destitution, as to be unfitted for general adoption, even if it were practicable to obtain the agency necessary, on the scale that would be required.

6. That, while the principle of forming district and separate schools is correct, the special manner in which it has been advocated and applied, is not equally so: inasmuch as the aggregation of very large numbers of children in great buildings is attended with evils, moral and physical, which neutralise much of the undoubted excellence of the instruction given in them.

7. Consequently, that while all such schools should continue to be mixed, each should not contain more than 500 or 600 boys and girls; for to this number as complete mental, and much more complete moral and physical, training can be given at a reasonable cost, as in institutions in which the numbers collected are altogether beyond the reach of the satisfactory control and supervision of a single head.

8. That such schools should be on the village home or cottage system, with central buildings for instruction in all its branches, in which mental culture, industrial training, and physical exercises should go hand in hand, and be united with farm labour, and that the domestic arrangements should be brought as much as possible into harmony with those of the homes of the poor, in the best of our villages.

9. That the educational standards applied to poor law schools should be better adapted to the future lives of the children brought up in them, and be more varied in character, without increasing the difficulty of working up to them. Hence that the status, emoluments, and qualifications of the teachers should be of a higher order than they are at present, to render the introduction of such a system possible. Its results would more than repay any additional cost incurred.

10. That the instruction of the infants in all these schools should be on the Kinder-garten system, as that best calculated to train the powers of observation at the earliest ages, for, as recently remarked by Canon Farrar, "When a child is allowed to grow up to the ages of 5 or 7, without any adequate training of the power, not of reading and writing, but of the important mental power of observation, it would by that time have learned many things in a wrong way, which would be detrimental to it in the future." It is also much more needed for workhouse children than for the children of any other class, rich or poor, as it is in the power of observation that they are naturally most deficient.

11. Lastly. That many of the physical defects of the children can be removed, as they were in the hardy crew of the "Goliath,"



and as they now are in the "Exmouth," and in both girls and boys at Anerley, by the musical and dumb bell drill, and swimming of the former; and by the drill, gymnastics, mast, and swimming also of the latter, combined with carpentry, smith's work, farm labour, and such other varieties of handicrafts and industrial occupations, as may fit them to take a proper place among the working classes of the country.

*Conclusion.*

I cannot conclude my paper in a more fitting manner, than by quoting the judgment of the family system pronounced by the Managers of the Children's Home in the Bonner Road, after some years of its practical working among identically the same type of children as are found in the Metropolitan Workhouses. To this admirable institution none are denied admission, who are "friendless, fatherless, or destitute, and for whose moral and "material welfare no provision is made."

"Many advantages," they say, "are gained by this plan. It "checks, if it does not entirely prevent, the evils so frequently "found in very large gatherings of children, evils against which "special precautions are needed. It renders the maintenance of "discipline possible, without crushing the spontaneity and vivacity "of child life. It secures an exactness of oversight and a dealing "with individual temperaments, according to their special peculiarities, which in other circumstances would not be possible, and "it reproduces as nearly as may be that home life which is God's "grand device for the education, in the best meaning of the word, "of the human race. There are, moreover, economical advantages "attached to the system, but of which one only need be mentioned: "it enables the institution to be established without any enormous "outlay for buildings, allows it to grow naturally, and by a succession of comparatively easy efforts, house being added to house as "the families multiply."

What higher commendation could be given to any system?

## APPENDIX.

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**SIX TABLES,**

SHOWING THE AMOUNT OF THE PARLIAMENTARY GRANT FOR THE  
PAYMENT OF TEACHERS, 1857-58;

COST OF THE METROPOLITAN POOR LAW SCHOOLS;

RETURNS OF CHILDREN SENT BACK TO THE WORKHOUSES;

YOUNG OFFENDERS ADMITTED TO REFORMATORY SCHOOLS, 1854-76;

AND

NUMBER OF CHILDREN IN REFORMATORIES WHO HAVE BEEN IN  
WORKHOUSES, 1868-77.

TABLE I.—*Number of Children Educated by the Poor Law Authorities, with the Amount of the Parliamentary Grant for Payment of the Salaries of the Teachers.*

Year.	Taught in Workhouse Schools.		Taught in District Schools.		Total Number of Children Educated by Poor Law Authorities.	Salaries of Teachers.
	Boys.	Girls.	Boys.	Girls.		
1851 ....	18,252	16,151	—	—	34,403	£ 21,328
'52 ....	17,289	15,579	525	373	33,766	21,848
'53 ....	16,277	15,051	1,096	783	33,207	22,204
'54 ....	17,278	16,545	1,007	863	35,693	23,013
1855 ....	18,455	17,829	1,129	927	38,340	23,982
'56 ....	17,666	17,416	1,448	1,284	37,814	26,616
'57 ....	17,370	16,999	1,519	1,352	37,240	29,398
'58 ....	17,886	17,069	1,564	1,349	37,868	30,857
'59 ....	16,052	14,842	1,453	1,229	33,576	31,117
1860 ....	14,344	13,761	1,370	1,179	30,654	31,231
'61 ....	15,290	15,434	1,435	1,317	33,476	31,188
'62 ....	16,684	16,987	1,633	1,475	36,779	32,124
'63 ....	17,172	16,732	1,669	1,518	37,091	32,768
'64 ....	16,568	16,003	1,585	1,392	35,548	33,916
1865 ....	16,320	15,425	1,596	1,366	34,706	34,220
'66 ....	15,886	15,304	1,655	1,421	34,266	34,322
'67 ....	16,815	16,124	1,838	1,505	36,282	34,117
'68 ....	18,464	17,640	2,077	1,669	39,850	33,838
'69 ....	19,318	18,420	1,961	1,516	41,215	35,474
1870 ....	19,076	17,519	2,816	2,163	41,574	36,139
'71 ....	18,374	16,463	2,732	1,973	39,542	36,778
'72 ....	16,132	14,800	2,717	1,898	35,547	36,222
'73 ....	15,374	14,298	3,008	2,217	34,897	36,098
'74 ....	14,699	13,459	3,126	2,293	33,577	35,518
1875 ....	14,120	13,006	3,394	2,423	32,943	34,405
'76 ....	13,711	12,781	3,165	2,417	32,074	34,636
'77 ....	14,068	12,595	2,207	2,388	32,258	33,494
'78 ....	14,359	12,925	3,654	2,690	33,628	35,116

TABLE II.—*Annual Average Number of Scholars, Gross Expenditure, and Cost per Child*

Name of School.	Average Number of Scholars per Day.						Total Expenditure for all Purposes.					
	1869.	1870.	1871.	1872.	1873.	Average of the 5 Years.	1869.	1870.	1871.	1872.	1873.	Average of the 5 Years.
							£	£	£	£	£	£
St. Pancras ....	—	—	—	389	398	393	—	—	—	14,562	14,380	14,472
Forest Gate, } "Goliath" }	—	—	—	395	379	387	—	—	—	9,462	11,403	10,432
St. Leonard, } Shoreditch }	404	408	364	361	363	380	9,783	8,554	12,032	9,723	8,192	9,657
Central Lon- } don ..... }	1,042	1,065	1,227	1,164	1,155	1,131	21,796	21,926	27,408	30,086	32,853	26,814
St. Marylebone	435	439	432	439	415	432	9,966	9,663	9,805	10,063	10,186	9,937
North Surrey ..	823	869	864	750	807	823	18,891	19,896	17,176	15,518	22,404	18,777
Bethnal Green	143	246	351	350	394	297	3,111	6,682	7,377	6,751	8,576	6,499
Holborn .....	—	—	—	424	438	431	—	—	—	9,331	9,200	9,265
Forest Gate } School .... }	—	881	771	698	791	791	—	15,970	16,429	15,858	17,703	16,490
Strand .....	361	367	399	377	350	371	7,922	7,821	7,289	8,646	7,206	7,757
South Metro- } politan .... }	1,310	1,272	1,216	1,234	1,291	1,265	24,181	24,661	24,905	26,008	28,358	25,623
Westminster....	213	238	239	223	221	227	3,603	4,146	4,817	4,311	5,335	4,442
Islington .....	245	247	252	248	241	247	4,224	4,217	4,484	5,100	6,344	4,874
St. George- } in-the-East }	530	488	439	290	266	403	9,191	8,301	7,578	6,550	6,378	7,599
Lambeth .....	435	416	387	350	348	387	6,715	6,629	6,387	6,532	6,570	6,566
Mile End .....	266	267	265	286	279	273	4,138	4,414	4,651	4,503	4,877	4,517



of each of the District and Separate Metropolitan Poor Law Schools from 1869 to 1873.

Total Cost per Head per Annum.						Name of School.
1869.	1870.	1871.	1872.	1873.	Average of the Five Years.	
£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
—	—	—	37 8 8	36 2 8	36 16 2	St. Pancras
—	—	—	23 19 1	30 1 9	27 — —	{ Forest Gate, "Goliath"
24 4 3	20 19 4	33 1 1	26 18 8	22 11 4	25 8 3	{ St. Leonard, Shoreditch
21 — 3	20 11 9	22 6 9	25 16 11	28 8 11	23 19 6	{ Central Lon- don
22 18 2	22 — 2	22 13 11	22 18 5	24 10 10	23 — 3	St. Marylebone
22 19 3	22 17 11	19 17 6	20 13 10	27 15 3	22 16 4	North Surrey
21 15 1	27 3 4	21 — 4	19 5 10	21 15 4	21 17 3	Bethnal Green
—	—	—	22 — 1	21 — 1	21 10 1	Holborn
—	18 2 7	21 6 2	22 14 5	22 7 7	21 — 2	{ Forest Gate School
21 8 11	21 6 2	18 5 5	22 18 8	20 11 9	20 18 2	Strand
18 9 2	19 7 9	20 9 7	21 1 6	21 19 4	20 5 1	{ South Metro- politan
16 18 4	17 8 5	20 3 1	19 6 8	24 2 10	19 15 10	Westminster
17 4 10	17 1 6	17 15 10	20 11 3	26 6 6	19 14 8	Islington
17 6 10	17 — 2	17 5 2	22 11 8	23 19 7	19 12 8	{ St. George-in- the-East
15 8 9	15 18 8	16 10 1	18 13 3	18 17 7	16 19 4	Lambeth
15 11 1	16 10 8	17 11 —	15 14 10	15 9 7	16 10 —	Mile End

TABLE III.—Cost in the Metropolitan Poor Law Schools of Provisions, Necessaries, &amp;c. under Four Different Heads.

Name of School.	Cost of "Provisions" per Head per Annum.						Average of the Five Years.
	1869.	1870.	1871.	1872.	1873.		
<i>Separate Schools—</i>	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
Bethnal Green, Leytonstone } .....	4 1 10	6 6 5	5 16 2	6 7 4	6 8 4	5 16 -	
St. George-in-the-East, Plashet } .....	8 19 6	8 10 9	8 14 9	11 14 4 $\frac{3}{4}$	12 2 6 $\frac{1}{2}$	9 19 9 $\frac{1}{2}$	
Holborn, Mitcham.....	—	—	—	6 14 11 $\frac{1}{2}$	7 5 2	7 - 1	
Islington, Hornsey .....	7 - 5	6 4 8	5 16 2	6 9 2 $\frac{1}{2}$	7 6 8 $\frac{1}{2}$	6 11 5	
Lambeth, Norwood .....	6 8 11	6 4 9	6 9 3 $\frac{1}{2}$	7 4 9	7 7 7	6 15 1	
Mile End Old Town, } .....	6 10 - $\frac{1}{2}$	6 2 10	6 9 6	6 19 1 $\frac{1}{2}$	6 18 3 $\frac{1}{2}$	6 11 11 $\frac{1}{2}$	
Bancroft Road .....	—	—	—	—	—	—	
St. Marylebone, Southall .....	—	6 18 5	7 4 9	7 11 11 $\frac{3}{4}$	7 2 - $\frac{1}{2}$	7 4 3 $\frac{1}{2}$	
St. Pancras, Leavesden.....	—	—	—	7 8 9	6 13 11	7 1 4	
Shoreditch, Brentwood.....	11 6 4	8 1 11 $\frac{1}{2}$	7 13 5 $\frac{1}{2}$	6 6 11 $\frac{1}{2}$	5 14 7	7 16 7 $\frac{3}{4}$	
Strand, Edmonton.....	8 6 - $\frac{3}{4}$	7 8 4	6 19 2	7 11 9	7 17 - $\frac{1}{2}$	7 12 6	
Westminster, Battersea.....	7 16 1	6 3 1 $\frac{1}{2}$	6 10 3	7 - 5	7 1 5	6 18 3	
<i>District Schools—</i>							
Central London .....	7 15 9	7 5 8 $\frac{3}{4}$	7 6 2	8 15 6 $\frac{1}{4}$	8 18 4 $\frac{3}{4}$	8 - 4	
Forest Gate .....	—	6 12 1 $\frac{1}{2}$	6 8 2	7 4 10 $\frac{1}{2}$	7 17 11	7 - 9	
North Surrey .....	9 6 3	8 17 8	8 18 6	9 10 -	9 5 -	9 3 5	
South Metropolitan .....	7 11 1	7 10 5 $\frac{1}{2}$	7 11 8	8 2 5	7 18 2	7 14 9	
Cost of "Necessaries" per Head per Annum.							
<i>Separate Schools—</i>	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
Bethnal Green, Leytonstone } .....	4 11 9 $\frac{1}{2}$	2 18 4 $\frac{1}{2}$	2 6 2 $\frac{1}{2}$	2 - 10	3 3 -	3 - - $\frac{1}{2}$	
St. George-in-the-East, Plashet } .....	3 2 2 $\frac{1}{2}$	2 14 4	3 7 8 $\frac{1}{2}$	5 - 7	2 19 10 $\frac{1}{2}$	3 8 11	
Holborn, Mitcham.....	—	—	—	2 1 1	2 14 6 $\frac{1}{2}$	2 7 9 $\frac{1}{2}$	
Islington, Hornsey .....	14 9 $\frac{1}{2}$	2 14 6 $\frac{1}{2}$	2 15 4	3 2 1	3 15 10	3 - 4	
Lambeth, Norwood .....	14 11	2 18 4	3 2 2	2 18 8	3 2 6 $\frac{1}{2}$	2 19 6	
Mile End Old Town, } .....	2 17 10	2 16 4	3 12 3	2 13 2	3 3 6 $\frac{1}{2}$	3 - 7	
Bancroft Road .....	—	—	—	—	—	—	
St. Marylebone, Southall .....	—	4 - 8	4 16 -	4 7 6	5 12 -	4 14 - $\frac{1}{2}$	
St. Pancras, Leavesden.....	—	—	—	5 6 6	5 13 7	5 10 11	
Shoreditch, Brentwood.....	4 10 4 $\frac{1}{2}$	3 6 3 $\frac{1}{2}$	4 18 9 $\frac{1}{2}$	3 10 6	4 9 3	4 3 - $\frac{1}{2}$	
Strand, Edmonton.....	2 15 - $\frac{1}{2}$	2 5 5 $\frac{1}{2}$	2 9 9	2 12 2	3 1 1	2 14 9	
Westminster, Battersea.....	2 10 6 $\frac{1}{2}$	2 15 10	2 12 7	3 1 1	5 2 8	3 4 6 $\frac{1}{2}$	
<i>District Schools—</i>							
Central London .....	3 13 1	3 5 9 $\frac{1}{2}$	3 17 2 $\frac{1}{4}$	3 13 11 $\frac{3}{4}$	4 2 7 $\frac{1}{2}$	3 14 6 $\frac{1}{4}$	
Forest Gate .....	—	2 4 3	2 1 2 $\frac{1}{2}$	2 9 8 $\frac{3}{4}$	2 16 11 $\frac{1}{2}$	2 8 -	
North Surrey .....	3 - 6	2 8 6	2 3 8	2 5 3	4 1 7	2 15 11	
South Metropolitan .....	3 11 1	3 9 11	3 9 5	3 8 2	4 2 -	3 12 1	

TABLE III *Contd.*—Cost in the Metropolitan Poor Law Schools of Furniture, and Repairs of Buildings, &c., under Four Different Heads.

Name of School.	Cost of "Repairs, Furniture, &c.," per Head per Annum.						Average of the Five Years.
	1869.	1870.	1871.	1872.	1873.		
<i>Separate Schools—</i>	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
Bethnal Green, Leytonstone .....	10 19 11	5 12 11	3 18 9	1 8 8	3 11 —	5 2 3	
St. George-in-the-East, Plashet .....	2 9 9	2 4 3½	2 7 3½	2 17 9½	2 15 6½	2 10 11	
Holborn, Mitcham .....	—	—	—	6 16 11	6 18 3	6 17 7	
Islington, Hornsey .....	2 — 10	2 1 3	2 11 2½	3 15 1½	6 16 9½	3 9 —½	
Lambeth, Norwood .....	1 — 9	1 10 2	1 9 11	2 12 2	1 14 10	1 13 2	
Mile End Old Town, Bancroft Road .....	1 6 8¾	2 10 10	2 6 4½	— 19 11½	2 — 8	1 16 11	
St. Marylebone, Southall .....	—	4 11 6	3 19 10	3 4 11½	3 6 9½	3 15 9	
St. Pancras, Leavesden .....	—	—	—	7 11 11½	5 3 4	6 7 8	
Shoreditch, Brentwood .....	4 4 8	3 16 9½	9 7 9½	6 15 11¾	2 — 7¾	5 5 2	
Strand, Edmonton .....	3 17 7	4 10 5½	2 4 10	2 5 1½	2 12 —	3 2 —	
Westminster, Battersea .....	2 8 10	3 19 2	6 10 2	4 8 1	5 12 6½	4 11 9	
<i>District Schools—</i>							
Central London .....	6 7 3	8 7 5	5 1 9½	3 19 9½	6 13 2½	6 1 10¾	
Forest Gate .....	—	2 16 9	2 12 8½	2 8 11	2 12 2	2 12 7½	
North Surrey .....	3 13 7¾	4 3 4	2 17 3	3 8 10½	7 1 3½	4 4 10½	
South Metropolitan .....	3 15 1¾	4 9 11	5 8 8¾	5 8 4¾	4 18 8	5 1 8	
Cost of "Education and Industrial Training" per Head per Annum.							
<i>Separate Schools—</i>	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
Bethnal Green, Leytonstone .....	— 9 2½	1 2 2¼	— 11 11	— 14 3¾	— 15 4½	— 14 7	
St. George-in-the-East, Plashet .....	4 3 10	4 12 —½	4 2 10½	4 14 —	5 4 2	4 11 4¾	
Holborn, Mitcham .....	—	—	—	—	—	—	
Islington, Hornsey .....	— 14 1	— 18 11½	— 19 7	1 — 6½	1 3 6	— 19 4	
Lambeth, Norwood .....	2 — 7	1 16 8	1 13 6	1 18 9½	2 4 10	1 18 10½	
Mile End Old Town, Bancroft Road .....	1 9 1	1 9 3	1 10 5	1 9 3	1 8 7	1 9 3¾	
St. Marylebone, Southall .....	1 1 —	1 1 4½	1 2 5	1 3 4½	1 9 3	1 4 1	
St. Pancras, Leavesden .....	—	—	—	1 10 —¼	1 8 8½	1 9 4¼	
Shoreditch, Brentwood .....	1 2 9¾	1 7 7¾	1 6 11½	1 4 8½	1 2 9	1 4 7	
Strand, Edmonton .....	2 — 9	2 1 7	2 2 7	2 5 8	2 5 4½	2 3 2	
Westminster, Battersea .....	— 16 5½	— 13 6	— 12 7½	— 14 10	— 14 2	— 14 3¾	
<i>District Schools—</i>							
Central London .....	3 18 7	4 1 10¼	3 2 6¾	3 3 3½	2 19 1½	3 9 1	
Forest Gate .....	—	— 3 1¾	— 8½	— 1 —½	— 2 4¼	— 1 9¾	
North Surrey .....	—	—	—	—	—	—	
South Metropolitan .....	1 — 11	1 — —½	1 2 5¼	1 3 9	1 1 9	1 1 9	

TABLE IV.—*Summary by Counties Proper.*

[Abstract of Parliamentary Return of Workhouse and District Schools, No. 496, dated 30th Jan., 1861.]

County and Union.	The Number of Young Persons who were in the Workhouse Schools of the several Unions and Parishes in England and Wales, for a period of not less than Two Consecutive Years within the Ten Years ended the 31st day of December, 1860, and who have Left the Workhouse, for Service or other Industrial Occupation.		The Number of such Young Persons who have Returned to the Workhouse, by Reason of their own Misconduct.		The Number who have returned to the Workhouse, from Causes not involving their own Misconduct.	
	Males.	Females.	Males.	Females.	Males.	Females.
ENGLAND.						
Bedford.....	90	113	4	6	—	20
Berks.....	313	332	14	21	15	38
Bucks .....	152	177	11	20	3	10
Cambridge .....	220	180	13	16	29	29
Chester .....	257	173	22	27	37	40
Cornwall .....	161	152	5	17	14	23
Cumberland .....	193	159	6	11	39	22
Derby .....	195	138	14	13	2	3
Devon .....	882	716	25	38	98	118
Dorset .....	135	178	7	11	13	13
Durham.....	136	186	8	24	5	8
Essex.....	455	490	12	51	38	63
Gloucester.....	639	523	27	46	37	80
Hereford .....	128	132	13	16	5	7
Hertford .....	188	193	9	39	17	22
Huntingdon .....	54	49	8	10	2	11
Kent.....	608	679	43	120	81	107
Lancaster .....	1,132	813	87	103	214	161
Leicester .....	347	254	9	21	7	6
Lincoln .....	455	456	32	79	30	34
Middlesex .....	1,489	1,336	90	175	98	161
Monmouth .....	84	107	5	15	8	18
Norfolk .....	521	476	19	55	25	47
Northampton ....	317	294	25	59	16	26
Northumberland	152	174	4	21	5	26
Nottingham .....	234	218	24	38	14	20
Oxford .....	271	236	10	18	23	30
Rutland.....	22	15	—	1	2	4
Salop .....	231	195	27	30	20	27
Somerset .....	530	457	25	42	67	93
Southampton ...	665	505	24	48	46	88
Stafford .....	307	342	31	119	29	62
Suffolk .....	394	410	44	68	29	22
Surrey .....	552	465	25	51	34	72
Sussex .....	431	384	28	45	44	83
Warwick .....	196	138	3	8	7	23
Westmoreland ....	42	31	2	2	2	1
Wilts .....	381	346	8	45	36	41
Worcester.....	201	185	27	47	19	26
York (E. Riding)	177	116	8	12	16	19
" (N. " )	77	79	3	12	6	8
" (W. " )	390	377	35	63	32	36
Totals ....	14,404	12,979	836	1,663	1,264	1,748



TABLE IV.—*Summary by Counties Proper—Contd.*

County and Union.	The Number of Young Persons who were in the Workhouse Schools of the several Unions and Parishes in England and Wales, for a period of not less than Two Consecutive Years within the Ten Years ended the 31st day of December, 1860, and who have Left the Workhouse, for Service or other Industrial Occupation.		The Number of such Young Persons who have Returned to the Workhouse, by Reason of their own Misconduct.		The Number who have returned to the Workhouse, from Causes not involving their own Misconduct.	
	Males.	Females.	Males.	Females.	Males.	Females.
<b>WALES.</b>						
Anglesea .....	—	—	—	—	—	—
Brecon .....	58	51	4	5	—	—
Cardigan .....	9	4	—	—	—	—
Carmarthen .....	31	25	2	4	1	—
Carnarvon.....	21	10	1	—	1	1
Denbigh .....	23	27	2	2	1	3
Flint .....	100	102	2	3	3	5
Glamorgan .....	88	65	4	5	7	6
Merioneth.....	13	10	—	4	—	2
Montgomery.....	58	37	4	5	9	4
Pembroke .....	95	89	1	2	9	9
Radnor .....	33	17	—	—	1	1
Totals .....	529	439	20	30	32	43
District schools....	777	612	24	63	67	105
Totals of England and Wales .....	15,710	14,030	880	1,756	1,363	1,896

TABLE V.—Totals of the Number of Young Offenders Admitted into and Discharged from Certified Reformatory Schools in Great Britain, and the Mode of Discharge, up to 31st December, 1876.

	England.				Scotland.				Total.	
	Protestant.		Roman Catholic.		Protestant.		Roman Catholic.			
	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.
<i>Admissions—</i>										
1854 .....	28	1	—	—	—	—	—	—	28	1
'55 .....	164	24	—	—	167	54	—	—	331	78
'56 .....	477	52	192	42	151	49	—	—	820	143
'57 .....	711	100	247	53	143	50	—	—	1,101	203
'58 .....	553	104	119	40	120	48	—	4	792	196
'59 .....	706	155	148	43	129	58	26	17	1,009	272
'60 .....	765	192	146	46	174	50	60	35	1,145	323
'61 .....	869	259	153	45	184	26	82	18	1,288	348
'62 .....	675	150	161	54	186	55	47	26	1,069	285
'63 .....	643	149	105	47	179	51	49	20	976	267
'64 .....	654	148	233	46	179	48	53	22	1,119	264
'65 .....	753	213	263	52	186	57	54	15	1,256	337
'66 .....	816	193	254	67	207	40	50	20	1,327	320
'67 .....	850	201	270	43	181	38	95	28	1,396	310
'68 .....	828	213	256	32	185	51	68	38	1,337	334
'69 .....	863	199	222	58	177	56	95	17	1,357	330
'70 .....	801	196	254	66	174	44	72	21	1,301	327
'71 .....	790	182	248	59	194	59	63	19	1,295	319
'72 .....	831	240	311	63	186	39	75	26	1,403	368
'73 .....	863	204	308	48	170	40	54	31	1,395	323
'74 .....	821	207	306	57	216	35	43	23	1,386	322
'75 .....	773	150	228	56	161	38	44	10	1,206	254
'76 .....	800	186	258	33	166	23	51	33	1,275	275
Total .....	16,034	3,718	4,682	1,050	3,815	1,009	1,081	423	25,612	6,200
<i>Discharges—</i>										
To employment } or service .....	3,549	1,555	669	463	1,536	395	585	149	6,339	2,562
To friends.....	3,743	870	1,477	219	752	252	161	129	6,133	1,470
Emigrated.....	1,508	37	190	44	181	25	10	12	1,889	18
Sent to sea .....	2,149	—	697	—	134	—	—	—	2,980	—
Enlisted .....	351	—	126	—	36	—	—	—	513	—
Discharged on ac- } count of disease .....	151	95	63	20	35	19	18	1	267	135
Discharged as in- } corrigible .....	132	50	25	5	13	13	6	3	176	71
Transferred .....	423	144	65	36	107	41	12	2	607	223
Died .....	274	90	118	79	123	34	40	18	555	221
Absconded .....	427	81	98	8	175	94	49	2	749	185
Total .....	12,707	2,922	3,528	874	3,092	873	881	316	20,208	4,985
<i>Under detention</i>										
31st Dec., 1876....	3,327	796	1,154	176	723	136	200	107	5,404	1,215
In school .....	2,785	666	986	164	651	122	157	103	4,579	1,055
On licence.....	494	114	151	9	64	6	30	3	739	132
In prison .....	11	4	2	2	—	—	—	—	13	6
Absconded, sen- } tence unexpired .....	35	11	15	1	8	7	13	—	71	19
Retained in school, } sentence expired .....	2	1	—	—	—	1	—	1	2	3

TABLE VI.—Showing the Number of Juvenile Offenders Committed for Detention in Reformatory Schools, who have Previously been Inmates of Workhouse, Union, or Poorhouse Schools, or of Pauper District Schools, for the Period of Ten Years, ending 31st December, 1877—1868-77.

Name of Reformatory School.	1868.		1869.		1870.		1871.		1872.		1873.		1874.		1875.		1876.		1877.		Total.	
	Union.	District.	Union.	District.	Union.	District.	Union.	District.	Union.	District.	Union.	District.	Union.	District.	Union.	District.	Union.	District.	Union.	District.	Union.	District.
Arno's Court .....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—
"Akbar" .....	—	—	—	—	—	1	—	1	—	—	—	2	—	1	—	1	—	—	—	—	—	6
Bedford .....	1	—	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	—	4	—
Birkdale Farm .....	—	—	—	—	5	1	2	—	3	—	3	—	4	—	3	—	4	—	—	—	24	1
Birmingham .....	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	2	—	4	—
Boleyn Castle .....	3	1	2	—	6	4	5	2	3	2	1	—	2	6	3	4	1	6	1	3	27	28
Bradwall .....	—	—	—	—	1	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	6	—
Buxton .....	6	—	1	—	4	—	4	—	3	—	1	—	4	—	1	—	2	—	2	—	28	—
Calder Farm .....	—	—	1	—	—	—	—	—	—	—	1	—	—	—	3	1	1	2	4	—	11	3
Castle Howard .....	1	—	—	—	1	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	4	—
"Clarence" .....	2	—	1	—	—	—	2	—	—	1	1	—	—	—	—	—	—	—	2	—	8	—
"Cornwall" .....	—	1	1	—	1	2	—	2	—	1	—	—	—	—	—	—	—	—	2	2	8	—
Cumberland .....	Information not available																					
Devon and Exeter .....	2	—	2	—	2	—	4	—	—	—	—	—	1	—	1	—	1	—	1	—	14	—
Doncaster .....	—	—	1	—	1	—	1	—	—	—	3	—	2	—	1	—	2	—	—	—	11	—
Doncaster .....	Nil																					
Essex .....	1	—	—	—	—	—	—	—	—	2	—	1	—	1	—	1	—	—	—	—	5	—
Glamorgan .....	—	—	—	—	1	—	3	—	1	—	2	—	—	—	4	—	—	—	1	—	13	—
Hampstead .....	10	3	8	1	4	—	5	—	6	1	4	2	6	2	1	3	1	6	—	7	45	25
Hampshire .....	—	—	—	—	—	—	—	—	—	—	—	—	1	—	3	—	1	—	2	—	7	—
Hardwick .....	1	—	1	—	—	—	—	—	—	—	1	—	—	—	2	—	1	—	—	—	6	—
Hertfordshire .....	2	—	—	—	1	1	—	—	—	—	1	—	—	—	—	—	2	—	—	—	3	4
Ipswich .....	No data to go upon, but manager recollects more than three																					
Kingswood .....	1	—	1	—	—	4	—	1	—	—	—	—	2	—	2	—	1	—	3	—	15	—
Lancashire, north .....	Information not available																					
Lancashire, R. C. ....	Nil																					
Leeds .....	2	—	—	—	1	—	—	—	—	—	1	2	1	—	1	—	1	—	1	—	8	2
Limpey Stoke (Bath) .....	No information can be obtained																					
Liverpool .....	—	—	1	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	3	—
London, Home in the East .....	—	2	—	1	—	1	—	—	1	—	1	—	—	—	—	2	2	2	—	—	4	8
Manchester and Salford .....	—	—	—	—	1	—	—	—	1	—	1	—	1	—	4	—	1	—	1	—	9	—
Market Weighton .....	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	2	—
Monmouthshire .....	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	2
Mount St. Bernard .....	—	—	—	—	—	—	—	—	1	—	2	—	1	—	2	—	6	—	4	—	16	—
Northampton .....	—	—	1	—	—	—	—	—	2	—	—	—	—	—	2	—	1	—	3	—	9	—
Northampton .....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—
North Eastern .....	—	—	1	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	1	—	5	—
Red Hill .....	1	1	5	1	9	1	3	—	1	1	3	—	—	—	1	—	—	—	—	—	22	5
Red Lodge .....	No record kept																					
Saltley .....	No record kept. Have had a few from workhouses, but none from district school																					
Stoke Farm .....	—	—	—	—	—	—	3	—	3	—	4	—	1	—	2	—	4	—	4	—	11	—
Suffolk .....	2	—	1	—	3	—	—	—	3	—	4	—	2	—	1	—	3	—	2	—	24	—
Sunderland .....	1	—	—	—	—	—	1	—	3	—	2	—	—	—	2	—	—	3	—	—	12	—
Surrey .....	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1	—
Toxteth Park .....	1	—	—	—	—	2	1	—	2	—	—	2	1	1	—	—	3	—	—	1	8	6
Wandsworth .....	No record																					
Warwickshire .....	1	—	—	—	—	2	—	—	1	—	—	2	—	—	2	—	2	1	9	2	13	3
Wellington Farm .....	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	2	1
Wills .....	—	—	1	—	—	—	—	—	1	—	—	—	—	2	—	—	1	—	—	2	6	8
Woodbury Hill .....	1	—	2	—	1	—	—	—	3	—	3	—	2	—	2	—	3	—	3	—	20	—
Yorkshire, R. C. ....	{ No record. Thirty girls now in the Reformatory own to have been in } workhouses																					
SCOTLAND.																						
Aberdeen .....	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	3	—
Dalbeth .....	Nil																					
Dalry Road .....	Nil																					
Glasgow .....	—	—	—	—	—	—	1	—	2	—	1	—	—	—	1	—	—	—	1	—	6	—
Inverness .....	—	—	—	—	—	—	—	—	—	—	5	—	4	—	—	—	1	—	1	—	12	—
Kibble .....	—	4	—	1	—	3	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	11
Old Mill .....	—	—	—	—	2	—	1	—	1	—	—	—	1	—	—	—	1	—	—	—	6	—
Parkhead .....	Nil																					
Rossie .....	Nil																					
Stranraer .....	2	—	3	—	3	—	3	—	1	—	—	—	—	—	1	—	—	—	—	—	13	—
	2	4	3	2	6	3	5	—	5	1	6	1	5	—	3	1	3	—	2	—	40	12

DISCUSSION *on* DR. MOUAT'S PAPER.

THE CHAIRMAN (Mr. W. Newmarch, F.R.S.) said Dr. Mouat had read a very able and conscientious paper, upon which he hoped there would be a very vigorous discussion. The best compliment they could pay to the author of the paper was to contradict him most vigorously, and he trusted that there would be a good response to that invitation.

Mr. EDWIN CHADWICK, C.B., commended the high spirit and ability of a large proportion of Dr. Mouat's paper, but he could have shown at length, had time permitted, that the doctrine propounded of the advantages of the smaller, or even of middle sized, over the larger schools, was wholly in error in principle, as demonstrated by comparative results;—that the larger the aggregation, the greater the segregation or power of classification and of class teaching; the better the physical, the intellectual, and the moral results, and the greater the economy. Due credit had been given to the kindergarten—but the efficiency of the infant school was only to be got usually with a first-class teacher—as the primary and most important part of a large school. Dr. Mouat had spoken of it as a disadvantage of a large school, “that the numbers collected together are altogether beyond the reach of the satisfactory control and supervision of a single head.” Why this was precisely the disadvantage of the small school, of the single mastered school, that its numerous and disparate classes, some six or seven, were only under the control of one head; whilst in the large school they were under the supervision, and special occupation of a number of heads; of a first class infant school teacher, whose service effected a saving of two years of school time (a saving which had not been noted); then of some twelve pupil teachers of different classes for one class after the other; then of a second assistant teacher, and a first teacher, and of a head teacher, and at the same time of a drill master—one of the most potent and formative of masters—of a music master, and of a trade instructor, all of whose services were brought to bear upon the body as well as the mind of the pupil on the half-time school system. And what was the comparative cost of all this teaching and training power in the larger systematised organisation? why in the instance cited of the Annerly district school, as in others, it was not more than one pound per head per annum, as against two pounds per head and more, the common expense of small schools throughout the country; but on the half-time principle, including the infant school, the children of the lowest and slowest type are got well through the “three R's” in about seven years, or between the tenth and the eleventh year, instead of between the thirteenth and the fourteenth year, saving about three years of time in primary education, gaining that three years for secondary education. As to the expense of this teaching power on the half-time principle gained by aggregation and segregation, it was indeed of seven years at one pound per annum, as against at least ten years at two pounds per annum, and the total cost of elementary education. Now as to the moral



and economical outcome from the separate district schools, upon what material, be it borne in mind, the very lowest morally and physically of the community, chiefly the offspring of depraved paupers, hereditary mendicants and delinquents, coming from the lowest neighbourhoods and most unsanitary conditions. As a class they were all stunted, and of inferior physique, with a large proportion of scrofulous and half idiotic children, many of them brought in late, and with hardened habits. Dr. Mouat spoke of the results in a subdued tone, that "a large number, probably a majority, of the children educated in the schools succeed fairly well in after life." The investigations that have been made show that they succeed pre-eminently well. The failures were stated to be within 6 per cent., but formerly the failures were fully 60 per cent., not above one out of three got into productive service; the bulk were on the streets, and formed the largest contingent to the population of the prisons; and considering the class, the latest results were grand, even with a larger discount. As to the physical outcome, there had been large and persistent misrepresentations, not by Dr. Mouat, but by others, who maintained that the aggregation of large numbers must be productive of disease: as it must to those ignorant of sanitary science, who could only conceive aggregations of filth, of filthy skins, in foul air. The fact was overlooked that these district half-time schools were in fact children's hospitals, in which many were brought in only to die; yet including these, the death-rates in these institutions were below the general death-rates of children of the same class of the population; but taking the children of this low type, who came in without developed disease upon them, the death-rates had been reduced to within 3 in a 1,000, whilst of the boarded out children, it had been held forth as satisfactory that the deaths had not exceeded 2 per cent., that is to say, 20 in a 1,000. In these larger institutions the "children's diseases" of spontaneous generation had been almost entirely excluded, and the power of sanitation and physical improvement, as far as they had gone, increased with the numbers and power of class treatment.

*Note by Mr. Chadwick.*—The real question as to the best course of treatment of the children of the destitute dates back to 1833, when the principle proposed by our Poor Law Commission was for the treatment of the children not under the same roof as adult paupers as in the union houses, but in separate houses and on a large scale. There is now a movement for a return to the principle then propounded, for economising as well as from experience in superior efficiency. The principle of graded schools now in progress in America was taken by Mr. Horace Mann from these separate schools, such as they were first introduced under the new poor law in England. The following table displays the principle of the large and small schools, and of graded schools up to 700. There are working examples of schools of above 1,000, with increasing advantages in economy, certainty, and presumably in efficiency, and indeed the limits of the profitable application of the principle as to numbers have not yet been determined. I submit the table as an example of statistical exposition of the working of a principle:—

*Administration of Funds for Education.**Table Illustrative of School Organisations for the Augmentation of Efficiency with Reduction of Expense.*

[In this table—which has been prepared on instructions by Mr. T. P. Allen, an experienced and skilful teacher who had charge, under Earl Russell, of an elementary school at Petersham—it is assumed that the pupils enter school at 7 years of age. At the end of the several periods mentioned in the third column, they would write a clear hand and would read intelligently, and would be capable of passing with credit the ordinary examinations in arithmetic approved by the Privy Council; they would have thoroughly mastered the usual rules, including proportion, as far as decimal fractions inclusive]. Since it was presented, in 1870, the prices of trained educational service have been augmented by the demand. The average number of scholars which can be accommodated in the whole of the existing State-aided schools appears to be 95.

Number of Scholars.	Annual Cost per Head.	Time of Teaching.	Total Cost per Head.
	£ s. d.		£ s.
40	Master and mistress* ....	6 to 7 yrs.	About 16 10
	Monitor .....		
	Expenses† .....		
	House rent‡ .....		
	Annual cost per head....		
70	Master and mistress.....	7 years§	" 12 10
	One pupil teacher.....		
	Expenses .....		
	House rent .....		
	Annual cost per head....		
120	Master and mistress.....	6 "	" 9 -
	Two pupil teachers .....		
	Expenses .....		
	House rent .....		
	Annual cost per head....		
200	Master .....	5 "	" 6 -
	Four pupil teachers .....		
	Expenses .....		
	Annual cost per head....		
	Master .....		
400	One assistant .....	4 "	" 4 -
	Six pupil teachers.....		
	Expenses .....		
	Annual cost per head....		
	Master .....		
700	First assistant .....	3 to 4 yrs.	Nearly 4 -
	Second " .....		
	Twelve pupil teachers ....		
	Expenses .....		
	Annual cost per head....		

\* It will be seen that no mistress is allowed when the number of scholars exceeds 120. In those cases separate establishments are maintained for boys and girls.

† By expenses is meant disbursements for stationery, cleaning, repairs, &c.

‡ Small schools, especially in the case of the so-called national schools, are usually provided with teachers' residences. In estimating cost, therefore, in the small schools, we must include a fair percentage (5*l.*) upon the capital employed in the construction of the residence, the teacher's income being affected to the full extent of the supposed rental.

§ A school of seventy is perhaps rather more obstructive to progress than one of forty. In the latter, though the organisation is necessarily very imperfect, the surveillance of the master can be more readily directed to every individual. In much larger collections this advantage in favour of a small number is much more than counterbalanced by the constant general supervision of the master, by the aptitude and intelligence of his subordinates, &c.

Mr. GEORGE HURST said that much as he admired the excellent paper they had listened to, he thought some of its contents admitted of a great deal of discussion. The condemnation of workhouse schools was altogether unworthy, for a great many of them had been well conducted, and the children had been brought up carefully and well. He had had some little experience of workhouse management in the last half century, and he could say that in many workhouse schools (and he referred particularly to the one at Bedford) the children had been well taught morally and intellectually, and had had a thorough training in tailoring, shoe-making, and other industrial occupations. The children were generally healthy and cheerful looking, and, at all events at Bedford, very few of them had gone wrong, while many of them had got very excellent situations.

Mr. E. C. TUFFNELL remarked that one of the main objects of Dr. Mouat's paper was to discredit large schools. Now this was a point much discussed in the Leeds meeting of the Social Science Congress: when the almost unanimous opinion was in favour of large schools, on account of the economy of time, money, and teaching power thereby effected. The London School Board have also expressed their preference for large schools, and acted on this opinion. Dr. Mouat had also stated that it was a fallacy to suppose that any credit was due to the district schools on account of their low death-rate, and instanced the low mortality at the Farningham school as a proof that the death-rate at the district schools was not extraordinary. This is an unfair comparison, as the Farningham school only admits boys under 10 years of age, and who are physically fit for labour; while the district schools admit children of all ages and in all states of disease. The last report of the North Surrey school showed only two deaths in the year among 800 children. One of these was a boy who entered ill of pleuro-pneumonia and who died in a month; the other was a child deserted and found half dead from a night's exposure on Clapham Common, who was partly recovered by the medical care at the school, and at length died of pneumonia. Now neither of these cases would have been admitted into the Farningham school; therefore it is unjust to contrast the death-rates in the two schools, unless it be to show the excellence of the district system. But the evidence alleged by Dr. Mouat in his paper, proves the superiority of the district schools in this matter. He says that the death-rate in all the London pauper schools was shown by elaborate inquiry to be 12 per 1,000, while the death-rate of the whole metropolis among children of similar age was 14 per 1,000: that is contrasting the deaths of the lowest caste and physically most weak children as they exist in pauper schools, with the deaths among children of all classes, including of course the healthiest; we find that the deaths in the latter class are one-sixth larger than among the former. Can there be a stronger proof of the healthiness of the pauper schools?

Miss MÜLLER said she had had no acquaintance with the class



of schools under discussion, and, as a beginner, she felt unworthy to be placed on the same planks with those who had been at work for twenty or thirty years. There was, however, one question which suggested itself to her on the point raised by Dr. Mouat, that the status, emoluments, and qualifications of the teachers should be higher than at present. Was it not possible that by fulfilling this condition the teachers would be unfitted for the simple and elementary teaching of the youngest children? The minds of the children were in the earliest years most plastic, and it was then that the best and most suitable work should be brought to bear upon them. In the public schools for boys in England, the masters were men of the highest character, from the Universities of Oxford and Cambridge, and they were brought to teach boys of mild attainments in English and the classics, and the consequence was that a boy going to Eton or Harrow, who did not know the rudiments of an English education, would not learn them there. They must be very careful that they did not take away the education from the poor to give it to the rich.

Captain BOURCHIER, in response to the invitation of the Chairman, remarked that he quite agreed with all Dr. Mouat had said in the admirable paper which he had read that evening.

Mr. WYNDHAM HOLGATE (Inspector of Workhouse Schools), after expressing his thanks to Dr. Mouat for his excellent paper, and the Society for allowing it to be read and discussed, said many of the points brought forward might be looked at from different points of view. With respect to boarding-out, he thought that principle was not brought out so strong as it might be. Dr. Mouat did not mention that under the best circumstances boarding-out could only apply to a particular class—orphans and deserted children of 9 or 10 years of age, while it left on their hands, under any circumstances, the children most difficult to deal with. He fully agreed with the remarks made as to the benefit arising from physical education, and he had always told his teachers, when they were rather alarmed about the Education Act of 1876, that they would get just as good results if they allowed the children to play double as long as they did, if they kept them well at their work when in school. Dr. Mouat referred to the fact that no farming or garden work was done at the North Surrey schools, or on the "Exmouth." While fully agreeing with Dr. Mouat from a hygienic point of view, he remarked that the boys put to this work were usually the lowest types of intellect, unless, of course, the boys were really taught gardening. Mr. Holgate then read some remarks he had made on the subject of physical education in his last annual report, in which he advocated the extension of more useful kinds of work both for boys and girls. The girls should not merely assist, and do the work of the servants, but they should receive *bonâ fide* instruction. Dr. Mouat had spoken of the excessive requirements of the new code; but with one or two exceptions, the special subjects were absolutely untaught in poor law schools, nor did he think they should be. In the "three R's" and a good industrial training, he



thought they could turn out scholars equal to any in the world. With respect to Miss Müller's remark as to the teachers being of too high a class in some cases, he admitted that the young prig from college was unfitted for the task of teaching in such schools, for he had not come down to the duty required by the poor law authorities, that of keeping his temper and seeing to the whole welfare of the children, their moral and their religious education; and he regretted that Dr. Mouat had not laid stress on the religious element in the question. With regard to village schools, there was an admirable building at West Ham: but through an oversight there was not sufficient rooms to accommodate the number of officers required. Village homes must be more costly than district schools, as they required a larger permanent staff. School inspectors were fully alive to the weaknesses of the system, and they did their best to remedy them.

Surgeon-General GRAHAM BALFOUR, F.R.S., asked whether in the schools referred to by Dr. Mouat, the proportion of children at each year of life was the same, for if not the comparison of the rates of mortality would be wanting in accuracy. He had had some little experience of the physical health of schools, and he was sure that the combination of physical with intellectual instruction was of the utmost importance. Amongst other things, he had been instrumental in introducing swimming into the Duke of York's School at Chelsea, and since 1851 no boy had left that school without being able to swim well—in his clothes as well as out of them.

The Rev. I. DOXSEY said for some considerable time ophthalmia had never been absent from the South Metropolitan District Schools, and this had been a very grave and difficult question to deal with. The education was all that could be desired, but he thought the health of the children was endangered by their being gathered in large numbers. He suggested whether it would not be better that while the children were all taught together, they should live in small numbers, under the care of a single matron.

Dr. GUY, F.R.S., said he became a school boy at Christ's Hospital at a time when an important sanitary reform was made; prior to that time, ophthalmia and head-sores had been prevalent amongst the boys, and many of them were supplied with caps of a peculiar kind to prevent them coming into contact with their neighbours. The boys had previously washed consecutively in the same water; but by setting up long cisterns furnished with a number of separate cocks, so that each boy washed in clean fresh water, ophthalmia disappeared, and the cases of ringworm greatly diminished. The death-rate among the 800 boys was very small, so that a death was a very striking and solemn event. Of course, with proper care, the rate of mortality at the ages of those boys should be very small indeed. On the subject of the poor-law administration, Dr. Guy observed that in his opinion the Government ought to follow the example recently set by the prison

authorities, who had reduced the number of prisons from 120 or 130 to about one-half of that number, at a saving already of some such sum as 50,000*l.* a-year. There were 630 workhouses, which might very well be consolidated, and the children removed entirely from contact with the depraved adults, who form so large a section of the workhouse community, and with the idiots and imbeciles. At present the children were brought into contact only too often with old offenders; and if we must have a poor law, it ought certainly to be reformed in this particular. This suggestion did not arise exactly out of the admirable paper which had been read, but it was germane to the subject. He knew but little of the workhouse system, but a good deal of another system which was too nearly allied to it—the prison system. The Home Office has set a good example, let the Local Government Board follow it, and a larger economy must result from the change.

Dr. MOUAT, in reply, said that notwithstanding his extinction by his respected friend Mr. Chadwick, who had not waited to witness his revival, he was well satisfied with the results of the discussion, as it had not disturbed any of his conclusions. With reference to mortality rates there were not sufficient data in existence to determine the question with scientific accuracy, and he had advisedly spoken with reserve of the results of the education in the poor-law schools, as less than 10 per cent. of the children brought up in those schools had been traced in their after lives.

The question of the amalgamation of workhouses, and of the formation of separate or district schools for the children still retained in them, must await the probably no longer distant formation of county boards, as boards of guardians were not at present disposed to unite for any purpose whatever, and none but central authorities would take large and liberal views of such questions.

That the educational standards were not worked up to was probable enough, but that in no way disturbed his contention as to their unfitness, and the necessity of more physical and less mental training.

When the changes he advocated were introduced, he had no doubt that the success of the future would be even greater than that of the past.

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## VITAL STATISTICS of CAVALRY HORSES.

By SURGEON-GENERAL T. GRAHAM BALFOUR, M.D., F.R.S., *Mem.*  
*Corr. Étr. de l'Acad. Royale de Médecine de Belgique, &c., &c.*

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## CONTENTS :

	PAGE		PAGE
I.—The French Army.....	251	II.—The British Army .....	266

THE vital statistics of horses do not appear to have been much studied in this country, and the information on the subject is consequently meagre. In France, on the contrary, they have been carefully collected, and the results, as regards those of the army, have for a series of years been published by the Government. I propose to bring under the notice of the Society the leading facts thus recorded, in the hope that the subject may meet with that attention from our Government which it undoubtedly deserves, and thus lead to measures being taken to obtain trustworthy information on so important a question. And first as regards—

I.—*The French Army.*

During the ten years preceding 1843 the heavy losses of horses in the army by glanders had been repeatedly brought under the consideration of the military authorities, and several Commissions had been appointed to report upon various methods of treatment which had been suggested, and professed specifics for the cure of the disease, and to make such experiments as might be considered desirable to throw light upon this important subject. The results were not satisfactory; the vaunted remedies having been found useless, and the disease, when fully developed, beyond the control of medicine. An infirmary which had been established for the purpose of making the necessary experiments, was in consequence discontinued. But the labours of these Commissions had shown that much valuable information might be obtained by a systematic investigation of the various conditions under which the horses were placed, and much advantage gained by a judicious supervision of their management in health and treatment in sickness. Accordingly, in 1843, the war minister established a permanent Commission, under the title of “Commission d’Hygiène Hippique,” whose official duty was to be the examination of all questions relating to the health and preservation of the horses of the army. M. Magendie, the celebrated physiologist, who had conducted some

of the previous investigations, was named president of the Commission, and with him were associated as members two medical men and two agricultural chemists—members of the Institute—an assessor, skilled in administrative questions relative to the organisation of the cavalry and of the remount service of the army; two civil veterinary surgeons—members of the Royal Academy of Medicine—and four military veterinary officers. An assistant operative chemist was attached to the Commission to conduct such analyses and experiments as might be required.

A form of annual report was established, to be furnished by every army veterinary surgeon, and to include the following subjects:—

1. A medico-topographical description of the garrison and cantonments.

2. A description of the stables, their aspect, their internal arrangements, the nature of the ground, their capacity.

3. The nature and quality of the forage, and nomenclature of the plants which enter into the composition of the hay of the natural meadows.

4. Green food; number and ages of the horses which have been put upon it.

5. Nature and chemical composition of the water in use for watering the horses.

6. Statistics of the diseases observed from 1st January to 31st December.

7. Table of the losses by death during the year, subdivided according to ages, the districts in which the horses have been raised, and the fatal diseases; numerical statement of the horses cast as unfit for service, according to ages, districts, and causes of casting.

8. Mode of treatment employed in each class of diseases; opinion on the contagion or non-contagion of glanders, with facts observed.

9. Statement of the general causes which have contributed to the development of the diseases.

10. Hygienic measures adopted to preserve the health of the horses; measures suggested for adoption.

11. Sanitary condition of the horses of the corps.

12. Breed of the horses of the corps.

13. Mode of shoeing in use; improvements suggested.

The war minister also authorised the publication of an annual volume containing the results of the labours of the Commission. This, however, was not commenced till 1847, when the first volume appeared under the title of "*Recueil de Mémoires et Observations sur l'Hygiène et la Médecine Vétérinaires Militaires.*" The



detailed tables showing the sickness, mortality, and casting, were not inserted till the second volume, when those for 1846 were given, but, owing to some omissions, these were less perfect than those in the subsequent volumes. There is, however, a complete series for twenty years, 1847-66, from which the information to be brought under the notice of the Society has been chiefly obtained. In the third volume a table is given of the strength, deaths, and numbers cast in each year from 1835 to 1846, but there is no information respecting the causes of mortality and casting, or the ages at which these occurred.

In 1852 a change was made in the composition of the Commission, a more military character being given to it by the appointment of General Bougenel as president, and of a colonel and lieutenant-colonel of cavalry as members; M. Magendie being made honorary president. Some slight modifications were introduced into the returns, but no alteration of importance was made. The volumes continued to appear annually, till the twentieth, containing the statistics of 1866, was published in 1869. During the siege of Paris the documents for the subsequent year were lost or destroyed, but a new series was begun in 1872, which is still in course of publication.

The returns relating to the horses of the army in France and in Algeria respectively have been kept separate in these reports, and it is the results from the former alone which it is proposed to bring under notice. No information has been published respecting the losses in the campaigns of the Crimea and Italy which occurred during the twenty years included in the volumes of reports.

The mortality of the horses in the French army serving at home amounted, on the average of thirty years, 1837-66, to 58·15 per 1,000 of the strength annually, ranging between 125·50 in 1841, and 25·94 in 1862. The proportion "cast" during the same period was 80·59 per 1,000, and ranged between 135·20 in 1849 and 46·80 in 1855. The total loss of horses therefore by death and casting was close upon 14 per cent. The details of the strength, deaths, and number cast in each year, will be found in Table I, appended to this paper. On examining the table it will be found that a marked increase in the rate of mortality almost invariably occurs in connection with any considerable addition to the strength. This is very manifest in the years 1841, 1848, 1854, 1855, 1856, and 1859. The year 1849 appears to be an exception to this rule, there having been a large increase in the strength with a decrease in the rate of mortality compared with the preceding year, but the difference may probably have depended upon the very large number of horses removed from the service by casting in that year. We shall in a subsequent part of the paper refer to the causes of this

higher rate of mortality. In comparing the proportion cast in different years, it must be borne in mind that "casting" does not always arise from a great degree of inefficiency, but is liable to be affected by such circumstances as an increase or reduction in the strength of the army; the former causes all horses to be retained which are in any degree fit for service, while the latter is taken advantage of to get rid of any which are sickly, or which it is desirable, for various causes, to remove from the army. This remark of course does not apply to the mortality.

On subdividing the thirty years into quinquennial periods, the following results are obtained :—

Periods.	Aggregate Strength.	Died or Slaughtered.	Cast.	Ratio per 1,000 of Strength.	
				Died.	Cast.
1837-41 .....	201,843	23,233	13,551	115·37	67·29
42-46 .....	257,219	20,722	18,381	80·56	71·46
'47-51 .....	286,304	15,427	26,828	53·87	93·70
'52-56 .....	312,213	17,343	23,662	55·55	73·79
'57-61 .....	291,825	10,444	25,260	35·79	86·56
'62-66 .....	251,163	6,917	21,273	27·54	84·70
Total, 30 years ....	1,600,567	93,076	128,955	58·15	80·87

This table shows a remarkable and steady decrease in the mortality in each quinquennial period, except that from 1852 to 1856 inclusive, the ratio, which was 115·37 per 1,000 in the first five years, having fallen to 27·50, or less than one fourth, in the last. The exception above noted was probably due to two causes : first, the large number of young horses brought into the service by the augmentation which took place on the outbreak of the Crimean War ; and secondly, the number of horses which returned from it, some with constitutions impaired by the hardships they had undergone, and others labouring under disease contracted on service, to which they ultimately succumbed.

The great and progressive reduction in the mortality of the horses was one of the important results of the labours of the Commission of Hygiène. It was effected by the improvements introduced, on their recommendation, into the general management and sanitary conditions of the horses, especially those relating to feeding, and to the ventilation of, and increased cubic space provided in, the stables, and by the greater care bestowed upon the remounts. The importance of these results may to some extent be estimated by the fact, that in the amount required for the purchase of horses during the last five years, a saving of upwards of 90,000*l.* per annum was effected, compared with what would have been

required had the ratio of deaths and casting been the same as during the first quinquennium.

It is a point of some interest to ascertain whether sex exerts any influence upon the rate of mortality. The returns do not enable us to show this prior to 1850, but during the seventeen years 1850-66, the following results have been obtained:—

*Table showing the Strength, Deaths, and Numbers Cast of Horses and Mares respectively, from 1850 to 1866, grouped in Three Periods.*

	Horses.			Mares.			Ratio per 1,000 of Strength.			
	Strength.	Died.	Cast.	Strength.	Died.	Cast.	Horses.		Mares.	
							Died.	Cast.	Died.	Cast.
1850-56	238,527	12,363	20,117	190,655	10,715	14,340	51'83	84'34	56'20	75'21
'57-61	162,859	5,592	15,038	128,966	4,852	10,222	34'34	92'34	37'62	79'27
'62-66	146,926	3,813	13,160	104,237	3,104	8,113	25'95	89'57	29'78	77'83
Total ....	548,312	21,768	48,315	423,858	18,671	32,675	39'70	88'12	44'05	77'09

There has been a remarkable uniformity in the three periods into which the seventeen years are divided, the general result being that the mortality of the mares has been about  $4\frac{1}{4}$  per 1,000 higher than that of the horses, but the proportion of the latter cast has been 11 per 1,000 above that of the mares—the total loss of horses to the army being about  $6\frac{3}{4}$  per 1,000 greater than of mares.

The influence of age on the mortality and casting is a subject of great importance, and on it the information in the returns is very complete. In the table appended, No. II, the strength, deaths, and number cast at each age during the twenty years 1847-66, are stated, and the following are the results per 1,000 of mean strength in each quinquennium, and also for the whole period:—

Ages.	Deaths per 1,000 of Mean Strength in				
	1847-51.	1852-56.	1857-61.	1862-66.	1847-66.
4 years.....	63'00	75'74	51'79	43'93	62'01
5 „ .....	57'73	62'62	46'86	36'12	53'18
6 „ .....	59'88	60'71	38'28	29'12	49'81
7 „ .....	58'56	55'42	34'58	24'14	44'69
8 „ .....	56'13	55'15	32'77	24'00	42'64
9 „ .....	52'53	46'90	32'12	22'90	38'70
10 „ .....	42'81	43'22	29'32	22'33	34'14
11 „ .....	38'51	41'30	27'94	23'09	32'39
12 „ .....	39'77	41'98	27'20	25'77	33'41
13 upwards .....	53'87	50'50	36'93	28'47	40'63
Total .....	53'87	55'55	35'79	27'54	43'92

Ages.	Cast per 1,000 of Mean Strength in				
	1847-51.	1852-56.	1857-61.	1862-66.	1847-66.
4 years.....	16'52	6'41	11'45	3'94	9'50
5 „ .....	24'90	19'00	32'00	10'72	22'36
6 „ .....	48'20	37'60	49'69	22'59	41'56
7 „ .....	63'93	50'53	64'44	36'68	55'93
8 „ .....	71'45	61'57	74'50	49'84	65'89
9 „ .....	80'70	71'33	84'09	62'23	75'35
10 upwards .....	178'18	162'09	157'47	128'72	158'01
Total .....	93'70	75'79	86'56	84'70	85'00

From this it appears that the highest mortality occurs among horses of 4 years, and that the rate decreases till 11, when it reaches the minimum; but the mortality at 4, 5, and 6, has been higher in all four quinquennial periods than among horses of 13 and upwards. The very high rates at 4 and 5, and, to some extent also, the excess at 6 and 7, have been attributed to the circumstances under which horses are bought into the service. Shortly before the periods at which the purchases are usually made in the different districts, the young horses undergo what is known as *la préparation à la vente*. Fed up to that time principally on grass, and not accustomed to a stable, they are then brought in by the breeders, and shut up in their stables, which are usually small, dark, crowded, and low, and they are never exercised. They are covered with warm clothing, and abundantly nourished with barley, beans, or cooked grains or roots, to fatten them and give them a fine shining coat. They are consequently, when sold, very susceptible of disease from exposure on the journey from the place of purchase to the remount dépôt, from the change of food, and from the amount of work to which they are subjected in their training, preparatory to being handed over to corps. The effect of this on the mortality at different ages may be estimated to some extent by the numbers joining at each age. Of the horses purchased for the remount dépôts in the seventeen years 1849-65, the ages were as follows:—

4 years .....	101,626 = 50'3 per cent.
5 „ .....	50,321 = 24'9 „
6 „ .....	26,146 = 12'5 „
7 „ .....	24,964 = 12'3 „

We shall advert to this subject again when considering the rates of mortality in the different arms of the service.

The casting, as might have been expected, increases progressively with the advance of age, the amount in the earlier years



being comparatively very low, as the prevailing diseases among the young horses are chiefly of an acute character, and not very often terminating in such disabilities as would render them non-effective.

The diseases and injuries by which the mortality among the horses have been occasioned have been grouped into thirteen classes. In the following table the results are stated in four periods, with a view to show in what groups the reduction in the deaths has been chiefly effected. In consequence of some of the alterations in the forms of returns which were made on the reorganisation of the Commission in 1852, it has been found necessary to include six years in the first, and four in the second period, the last two periods being still, as in the other tables, quinquennial:—

*Table showing the Mortality by Different Classes of Disease among the Horses of the French Cavalry, serving in France, from 1847 to 1866, arranged in Four Periods.*

Period .....	1847-52.		1853-56.		1857-61.		1862-66.	
Aggregate Strength	341,329.		257,188.		291,825.		251,163.	
	Died.	Ratio per 1,000.	Died.	Ratio per 1,000.	Died.	Ratio per 1,000.	Died.	Ratio per 1,000.
Wounds and injuries	235	0'69	316	1'23	329	1'13	235	0'93
Fractures .....	335	0'98	634	2'46	817	2'80	689	2'74
Glanders .....	7,926	23'22	5,515	21'44	3,202	10'97	1,863	7'42
Farcy .....	504	1'48	488	1'90	378	1'29	190	0'76
Sorethroat .....	*	—	82	0'32	80	0'27	47	0'19
Bronchitis .....	*	—	94	0'36	63	0'22	26	0'10
Inflammation of lungs and pleura }	4,177	12'24	4,163	16'19	2,321	7'95	1,565	6'23
Strangles .....	*	—	74	0'29	44	0'15	34	0'13
Diseases of bowels ....	*	—	849	3'30	878	3'01	743	2'96
Typhoid diseases ....	528	1'54	644	2'50	803	2'75	532	2'12
Diseases of nervous system .....	*	—	534	2'08	460	1'58	356	1'42
Diseases of foot .....	*	—	60	0'23	58	0'20	35	0'14
Other diseases .....	3,913	11'46	1,591	6'19	948	3'25	592	2'36
Diseases of an epi- or enzootic cha- racter .....	—	—	108	0'42	63	0'22	10	0'04
Total .....	17,618	51'61	15,152	58'91	10,444	35'79	6,917	27'54

\* Included under "other diseases."

This table shows that in all the four periods glanders has been the cause of the greatest mortality, and that in it also the most marked reduction has taken place, amounting to 15'8 per 1,000 annually in the fourth as compared with the first period. It may

be necessary here to note that glanders is considered to be so incurable, that with a view to prevent its spread by contagion, a horse is slaughtered as soon as the existence of the disease is fully recognised. A ministerial circular of 18th December, 1846, ordered that all glandered or suspected horses were to be slaughtered unless cured at the end of six weeks. In 1847 instructions were issued that all horses with suspicious discharges should be examined by a special board; if the board were satisfied that the disease was glanders, it was to recommend the immediate slaughter of the horse; if not satisfied, it was to visit the horse frequently till the nature of the disease was ascertained. Next to glanders in importance, as a cause of death, is inflammation of the lungs and pleura, and in this class also there has been a very notable decrease. The deaths recorded under the very vague heading of other diseases, has also undergone a very satisfactory diminution. But it may be remarked that the ratio has been lower in the last than in all the preceding periods by all the groups except wounds and injuries, and fractures. It would appear therefore that the measures adopted by the Commission to improve the general health of the horses have been attended with success in all classes of diseases.

The influence of age upon the mortality by the different classes of diseases is a subject of much interest and importance. The returns show this only as regards four, but these the most important, of the groups. The results for the twenty years are shown in the following table:—

*Table showing the Influence of Age on the Mortality by certain Diseases on the Average of Twenty Years, 1847-66.*

Age.	Aggregate Strength.	Deaths by				Ratio per 1,000 of Strength Died by			
		Glanders.	Farcy.	Lung Inflammation.	Typhoid Diseases.	Glanders.	Farcy.	Lung Inflammation.	Typhoid Diseases.
4 years .....	96,082	979	101	2,729	689	10·19	1·05	28·40	7·17
5 " .....	131,281	2,055	177	2,342	613	15·65	1·35	17·84	4·63
6 " .....	143,763	2,897	253	1,698	382	20·15	1·76	11·81	2·66
7 " .....	139,616	2,685	250	1,343	256	19·23	1·79	9·62	1·83
8 " .....	120,449	2,323	171	963	149	19·29	1·42	7·99	1·13
9 " .....	110,694	1,846	165	798	136	16·68	1·49	7·21	1·23
10 " .....	97,579	1,456	122	576	73	14·92	1·25	5·90	0·75
11 " .....	85,176	1,155	82	459	62	13·56	0·96	5·39	0·73
12 " .....	73,569	996	71	392	55	13·54	0·96	5·33	0·75
13 and upwards ....	143,296	2,114	168	926	92	14·75	1·17	6·46	0·64
Total .....	1,141,505	18,506	1,560	12,226	2,507	16·21	1·34	10·71	2·20

It appears from this that the youngest horses are comparatively free from glanders. The highest rate of mortality by this disease occurs among those of 6 years, and there is afterwards a progressive diminution till 13 years. Farcy does not appear to be affected by age. By inflammation of the lungs and pleura the young horses suffer very severely, a result probably in a great degree due to the manner in which, as already pointed out, they are got up for sale by the breeders. At the age of 4, the age at which 50 per cent. of the horses is purchased, the mortality by these diseases amounts to nearly 3 per cent. annually. It decreases rapidly, and ultimately falls to a little over  $\frac{1}{2}$  per cent. at 11 and 12. The mortality by typhoid diseases is also very high among the young horses, and likewise diminishes rapidly with the advance of age: in this respect resembling typhoid fever in the soldiers, among whom it is essentially, but not exclusively, a disease of the young.

The disabilities which have given rise to the casting of the horses during the twenty years are shown in quinquennial periods in the following table:—

*Table showing the Causes for which Horses in the French Cavalry were "Cast" from 1847 to 1866 inclusive, arranged in Four Periods.*

Period .....	1847-51.		1852-56.		1857-61.		1862-66.	
Aggregate strength	286,304		312,213		291,825		251,163	
	Number Cast.	Ratio per 1,000.	Number Cast.	Ratio per 1,000.	Number Cast.	Ratio per 1,000.	Number Cast.	Ratio per 1,000.
Wounds and injuries	367	1'28	259	0'83	387	1'33	197	0'79
Bad constitution ....	4,022	14'05	2,445	7'83	2,840	9'73	1,174	4'67
Restiveness .....	666	2'33	335	1'07	538	1'84	269	1'07
Crib-biting .....	611	2'13	578	1'85	*410	} 2'03	{ 313	1'25
Blindness .....	—	—	—	—	†182			
Old age .....	5,353	18'70	4,623	14'81	3,239	11'10	2,314	9'21
Legs worn out .....	7,904	27'61	7,436	23'82	8,452	28'96	8,750	34'84
Incurable lameness....	3,467	12'11	2,816	9'02	3,226	11'06	2,896	11'53
Broken wind .....	1,170	4'08	1,595	5'11	1,373	4'70	1,525	6'07
Other causes .....	3,268	11'41	3,575	11'45	4,613	15'81	3,835	15'27
Total .....	26,828	93'70	23,662	75'79	25,260	86'56	21,273	84'70

\* Four years only, 1857-60.

† One year only, 1861.

The principal cause of casting has been the condition of the legs, one-third of the whole having, on the average of the twenty years, taken place on that account, and it appears to have increased latterly, the proportion in the last having been higher than in any of the preceding periods of five years. It may probably be fairly

inferred from this, that, owing perhaps to changes in the drill and duties of the cavalry, there is now more wear and tear of the horses than in the earlier period. The marked reduction in the proportion cast for "bad constitution" may be taken as additional evidence of the value of the work done by the Commission, in the careful supervision of the remounts. The other causes of casting do not seem to have undergone any marked change.

Before submitting the figures showing the rates of mortality and casting in the different arms of the service, a few preliminary observations may be necessary. In 1849 a corps of guides was raised, chiefly as a body guard for the President of the Republic. In 1854, after the proclamation of the Empire, it was formed into the imperial guard, and was subdivided into different arms, in the same manner as the troops of the line. Owing to the comparatively small numbers composing it, I have not thought it necessary to work out the results by arms of the service, but have kept the mortality and casting for the whole Guard, including the period they were the corps of guides, separate from those of the Line.

The cavalry of the French army is subdivided as follows: cavalry of reserve, comprising carabiniers and cuirassiers; cavalry of line—dragoons, and lancers; light cavalry—chasseurs, and hussars. The artillery, engineers, and transport corps also require a certain proportion of horses, but the greater number of these are for draught, not saddle; estimated by the purchases for these corps, the proportion of the latter amounts to one-sixth. The horses for all mounted troops are purchased for them, and sent to the different corps from the remount dépôts. The regulations in force during the twenty years under review, as regards height and price of horses, were as follows:—

	Height.	Price.
	Metres.	Frs.
Cavalry of reserve .....	1'542 to 1'597	800
„ line .....	1'515 „ 1'542	650
Light cavalry .....	1'475 „ 1'515	550
Artillery, engineers, and trans- { saddle ...	1'515 „ 1'542	650
port corps ..... { draught	1'488 „ 1'542	550
Officers' horses .....	—	900

But higher prices were allowed for the horses of the imperial guard. At first 1,000 frs. were given for all the horses, but in 1857 the prices were fixed at 1,200 for officers, 850 for reserve, 750 for line, light cavalry, and artillery saddle horses, and 650 for all draught horses.

The mortality and casting in the different arms are shown in the following table:—



*Table showing the Losses by Death and Casting in each Arm of the Service in the French Army Serving at Home, for Twenty Years, 1847-66 inclusive.*

Period, 1847-66.	Aggregate Strength.	Died.	Cast.	Ratio per 1,000 of Strength.	
				Died.	Cast.
Imperial Guard .....	80,727	2,580	7,131	32·03	88·33
<i>Troops of the Line—</i>					
Cavalry of reserve .....	157,207	6,513	15,529	41·43	98·78
Cavalry of line .....	257,495	11,476	24,685	44·57	95·87
Light cavalry .....	267,357	10,541	25,145	39·43	94·10
Artillery and train of } artillery .....	257,448	10,432	16,501	40·52	50·91
Engineers, and transport } corps .....	55,582	4,091	4,890	73·60	87·99
Military schools .....	19,709	620	} 3,142	{ 31·46	} 47·83
Remount dépôts .....	45,980	3,878		{ 84·34	
	1,141,505	50,131	97,023	43·91	85·00

Omitting the military schools, which are in many respects exceptional and cannot fairly be brought into the comparison, the mortality has been lower in the imperial guard than in any other branch of the service. But to form a fair comparison with the troops of the line, it is necessary to confine it to the same period, and to exclude the remount dépôts, which belong alike to both. Taking the last ten years, 1857-66, as the basis of comparison, the mortality in the imperial guard averaged 23·32, while that in the troops of the line was 31·13 per 1,000 of mean strength. It may be questioned how far this lower rate of mortality is due to the nature of the duties of the imperial guard, and whether it may not, to a great extent at least, be a consequence of the better bred horses obtained for it by the higher prices allowed. This view seems to be supported by the lower rate of mortality among the officers' than among the troop horses. Both are included in the general return, but a separate table of the mortality among the officers' horses, the property of the State, enables us to make the comparison for a period of eighteen years, 1849-66:—

*Officers' Horses, the Property of the State.*

Period.	Strength.	Cases.	Deaths.	Ratio per 1,000 of Strength.	
				Cases.	Deaths.
1849-51 .....	9,800	5,632	409	574·7	41·73
'52-56 .....	22,299	11,999	1,061	538·1	47·58
'57-61 .....	27,407	13,425	922	489·8	33·64
'62-66 .....	22,260	8,926	451	401·1	20·26
18 years ....	81,767	39,982	2,843	495·0	35·20

During that time the deaths among the officers' horses were in the proportion of 35·20, while among the troop horses they amounted to 43·11 per 1,000 of the strength. On the average of the ten years 1857-66 the rate among the former was 27·64 per 1,000, thus holding an intermediate place between that of the guard and troops of the line for the same period.

The mortality of the horses of the engineers and transport corps is very much higher than in any of the other arms. They are all draught horses, and low priced, which may to some extent account for the difference; but it must also in a considerable degree be due to the constant labour, the amount exacted from them in transport work, and the necessary exposure in all sorts of weather. The very high rate of mortality at the remount dépôts may be explained by the fact that the average strength is not that of a number of horses constantly at the dépôts throughout the year, but of a large number passing through and remaining at them for limited periods only. But these are the very periods during which diseases arising from exposure on removal from the hot stables of the breeders, or contracted *en route* to the dépôts, or resulting from change of diet, and from the work in training, would manifest themselves. That these circumstances exert a great influence, may be deduced from the fact that inflammation of the lungs and pleura is the cause of 45 per cent. of the deaths at the remount dépôts, while it amounts to only 23 per cent. of the total, exclusive of them. Typhoid diseases also cause a mortality of 7·96 per 1,000 of strength at them against 1·95 in the rest of the service.

The proportion of horses cast has been lower in the imperial guard than in the cavalry of the line, but it has been much lower in the artillery than in any of the other arms; the ratio in the engineer and transport corps has been almost identical with that in the guard. As already pointed out, the casting does not depend entirely on the horses being unfit for service, but is considerably affected by any augmentation or reduction of the force; it is therefore extremely difficult to account for the difference in the various arms, and especially the apparent exemption of the artillery.

Our observations have hitherto been confined to the mortality and casting of the horses; but the returns also show the admissions into infirmaries by the different groups of diseases. There is, however a circumstance connected with them which requires to be noted. At various times there have been a number of mules employed in the artillery and transport corps, and the cases occurring among them cannot be separated from those of the horses, as has been done with regard to the deaths and casting. In the following table, therefore, it has been necessary to add the strength of the mules, amounting to 9,985, to the aggregate strength of the horses.

The number is so small, amounting only to 9 in 1,000 of the whole force, that it can only in a very slight degree affect the results.\*

Table showing the Admissions into the Infirmaries by Various Classes of Diseases, from 1847 to 1866 inclusive, arranged in Four Periods.

Aggregate strength of horses & mules }	1847-52.		1853-56.		1857-61.		1862-66.	
	341,329		261,225		294,842		254,094	
	Admitted into Infirmary.	Ratio per 1,000 of Strength.	Admitted into Infirmary.	Ratio per 1,000.	Admitted into Infirmary.	Ratio per 1,000.	Admitted into Infirmary.	Ratio per 1,000.
Wounds and injuries .....	30,749	90·1	34,233	131·0	42,180	143·1	33,261	130·9
Fractures .....	390	1·2	763	2·9	901	3·0	800	3·1
Glanders .....	9,525	27·9	6,544	25·1	4,790	16·3	2,541	10·0
Farcy .....	3,425	10·0	2,087	8·0	1,502	5·1	603	2·4
Sore throat .....	—	—	5,412	20·7	6,201	21·0	4,908	19·3
Bronchitis .....	—	—	12,432	47·6	11,040	37·5	9,677	38·1
Inflammation of lungs and pleura .....	35,737	104·7	28,904	110·6	13,502	45·8	9,128	3·59
Strangles .....	—	—	17,674	67·6	16,853	57·2	13,556	53·3
Diseases of bowels .....	—	—	8,874	34·0	11,565	39·2	10,541	41·5
Typhoid diseases .....	5,524	16·2	4,103	15·7	5,433	18·4	3,558	14·0
Diseases of nervous system....	—	—	1,147	4·4	952	3·2	803	3·2
Diseases of feet ....	—	—	5,260	20·1	8,291	28·1	6,862	27·0
Other diseases ....	100,768	295·2	23,445	89·7	28,807	97·7	29,233	115·1
Epi- or enzootic diseases .....	—	—	2,997	11·5	315	1·1	77	0·3
Total .....	186,118	545·3	153,875	588·9	152,332	516·7	125,548	494·1

There was a slight increase in the proportion of admissions in

\* The following shows the strength of mules and the numbers that died and were cast from 1854 to 1866 inclusive. The returns do not show any to have been employed between 1846 and 1854:—

Table showing the Strength, Deaths, and Numbers Cast of Mules in the French Cavalry from 1854 to 1866.

	Strength.	Died.	Cast.	Ratio per 1,000.	
				Died.	Cast.
1854-60† .....	5,883	351	610	59·66	103·69
'61-66 .....	4,102	133	560	32·42	136·52
Total .....	9,985	484	1,170	48·47	117·18

† There were no mules employed in 1858.

the second period compared with the first, but a very marked and progressive reduction in the last two periods. The decrease is most marked in glanders and farcy, and in inflammation of the lungs and pleura. In wounds and injuries there has been an increase compared with the first six years, but this may perhaps, to some extent, have been a result of the change in the grouping of the diseases, a very large number of cases in the first period being classed under the heading of other diseases; the admissions by this group in the second and fourth periods were identical. During the last five years the admissions from all causes have been equal to about half the strength annually; above one-fourth of them having been from wounds and injuries, about the same proportion from diseases of the respiratory system, and rather less than a fourth by unclassified diseases.

The deaths of horses and mules affected with glanders amounted in the twenty years included in the table to 10,773, or 79·9 per 1,000 of the cases, leaving 20·1 per 1,000 as the proportion cured, or in which the diagnosis was incorrect, for in the admissions are included all suspected cases. It is stated in the reports of the Commission, that many of the cases discharged as cured were re-admitted with the disease, and ultimately slaughtered, and a very strong opinion is repeatedly expressed that the disease is really incurable, and that immediate slaughtering of infected animals is absolutely necessary to stamp it out, or even to keep it within bounds.

If a comparison of the deaths with the admissions into the infirmaries by the various groups of diseases be made for the fourteen years 1853-66, the proportion of deaths to cases will be found to be as follows :—

Classes of Diseases, &c.	Horses and Mules.			Classes of Diseases.	Horses and Mules.		
	Cases.	Deaths.	Deaths in 1,000 Cases.		Cases.	Deaths.	Deaths in 1,000 Cases.
Wounds, &c. ....	109,674	880	8·0	Strangles .....	48,083	152	3·2
Fractures .....	2,464	2,140	868·5	Diseases of } bowels..... }	30,980	2,472	85·5
Glanders .....	13,875	10,773	776·4	Typhoid .....	13,094	1,979	151·5
Farcy .....	4,192	1,078	257·2	Diseases of ner- } vous system }	2,902	1,350	465·2
Sore throat .....	16,521	209	12·6	Diseases of feet	20,413	153	7·5
Bronchitis .....	33,149	183	5·5	Other diseases ...	81,485	3,338	41·0
Inflammation } of lungs, &c. }	51,534	8,108	157·3	Epi- or enzootic	3,389	181	33·4

From this it would appear that it has been found necessary to



slaughter a very high proportion of the cases of fracture. Omitting these and glanders, already noticed, the highest ratio of deaths to cases has been furnished by diseases of the nervous system. In inflammation of the lungs and pleura, and in typhoid, the deaths have been upwards of 1 in 7 cases.

The influence of the seasons on the prevalence of the various groups of diseases, is shown in the following table of the quarterly admissions into the infirmaries in the years 1853-66 inclusive.

Aggregate Strength of Horses and Mules, 810,161.	Admissions into Infirmary in				Ratio of Admissions per 10,000 of Strength in			
	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.
Wounds and injuries } .....	22,274	28,846	33,372	25,182	280'4	360'0	411'9	310'8
Fractures } .....	554	720	689	501	7'0	9'0	8'5	6'2
Glanders } .....	3,567	3,779	3,591	2,938	44'9	47'2	44'3	36'3
Farcy } .....	1,027	1,055	1,084	1,026	12'9	13'2	13'4	12'7
Sore throat } .....	4,594	5,307	3,645	2,975	57'8	66'2	45'0	36'7
Bronchitis } .....	8,343	9,994	8,339	6,473	105'0	124'7	102'9	79'9
Inflammation of lungs and pleura } .....	12,056	14,406	13,423	11,649	151'8	179'8	165'7	143'8
Strangles } .....	12,926	18,040	10,833	6,284	162'7	225'1	133'7	77'6
Diseases of bowels } .....	6,876	8,022	8,618	7,464	86'6	100'1	106'4	92'1
Typhoid diseases } .....	2,546	3,813	3,782	2,953	32'0	47'6	46'7	36'4
Diseases of ner- vous system } .....	631	875	864	532	7'9	10'9	10'7	6'6
Diseases of feet } .....	4,806	5,125	5,485	4,997	60'5	63'9	67'7	61'7
Other diseases } .....	18,227	21,670	21,924	19,664	229'4	270'4	270'6	242'7
Epi- or enzootic diseases } .....	595	645	915	1,234	7'5	8'0	11'3	15'2
Total } .....	99,022	122,297	116,564	93,872	1246'4	1526'1	1438'8	1158'7

*Note.*—In the calculations, the necessary correction has been made to equalise the number of days in each quarter.

The second quarter, April—June, has furnished the largest number of admissions, and the last quarter, October—December, the smallest. The excess in the second quarter has been chiefly due to diseases of the respiratory organs. In the third quarter there has been a considerable increase in the cases of wounds and injuries, including sore backs, a result of the autumn manœuvres.

The average number of horses constantly non-effective from injuries and disease is a point of great importance, on which unfortunately the returns do not afford information. The nearest approximation to it which they furnish is the numbers in the infirmaries on the 31st December in each year, which have been as follows :—

*Table showing the Number of Horses and Mules in the Infirmaries on the 31st December in each Year from 1847 to 1866 inclusive.*

Year.	Number in Infirmary on 31st December.	Year.	Number in Infirmary on 31st December.	Year.	Number in Infirmary on 31st December.	Year.	Number in Infirmary on 31st December.
1847 .....	1,375	1852....	1,734	1857....	1,318	1862....	1,252
'48 .....	3,293	'53....	1,478	'58....	1,314	'63....	798
'49 .....	2,257	'54....	2,931	'59....	2,116	'64....	441
'50 .....	1,850	'55....	3,541	'60....	1,471	'65....	1,239
'51 .....	1,592	'56....	1,924	'61....	1,404	'66....	1,457
In periods of } five years }	10,367	—	11,608	—	7,623	—	5,187
Average per } 1,000 of strength.... }	36.20	—	37.18	—	26.12	—	20.65

The results show a decrease in the proportion non-effective from 36.20 in the first to 20.65 per 1,000 in the last five years. But the numbers must be considered as a mere approximation, and probably a good deal under the average for the whole year, as they are taken at the end of that quarter in which, as already shown, the admissions are lowest.

## II.—*British Army.*

The information respecting the horses of the army serving in the United Kingdom is unfortunately very meagre. It is chiefly to be found in the "General Annual Return of the British Army," prepared by the adjutant-general, and presented to parliament. This return shows the strength, deaths, and numbers cast in each year from 1861 to 1878 inclusive, but gives no information respecting the causes by which the mortality and casting have been occasioned, nor the ages at which they occurred.

The aggregate strength for the eighteen years 1861-78 amounted to 246,856, the deaths to 5,202, and the numbers cast to 24,014, being in the proportion of 21.07 and 97.79 per 1,000 of the strength annually. If the period be subdivided it will be found that there has been a slight increase in the mortality, but a very marked decrease in the casting during the last eight compared with the preceding ten years:—

	Aggregate Strength.	Died.	Cast.	Ratio per 1,000 of Strength.	
				Died.	Cast.
1861-70 .....	129,324	2,647	14,210	20.47	109.88
'71-78 .....	117,532	2,555	9,804	21.74	77.26
Total 18 years....	246,856	5,202	24,014	21.07	97.79

The mortality ranged between 16·87 per 1,000 in 1864, and 28·15 in 1871, and the casting between 75·71 in 1871, and 156·12 in 1878. It will be observed that the year in which the mortality was highest was that in which the casting was lowest. Unfortunately we have no means of tracing the diseases in which these differences occurred, nor of ascertaining the influence of age on the death-rate.

If the results for 1861-70 be compared with those of the French army for 1862-66, it will be found that in the British army the rate of mortality has been one-fourth lower, but the casting about one-fourth higher than in the French army.

From 1872 the returns give the numbers separately for the different arms of the service, of which the following table shows the results:—

1872-78.	Aggregate Strength.	Died.	Cast.	Ratio per 1,000 of Strength.	
				Died.	Cast.
Household cavalry .....	5,885	90	492	15·29	83·60
Cavalry of line .....	47,307	1,073	3,645	22·68	77·05
Royal horse artillery .....	13,025	} 810	3,006	19·79	73·44
Royal artillery .....	27,906				
Royal engineers .....	2,921	59	191	20·20	65·39
Military train, and army } service corps .....	7,558	159	1,489	21·04	197·01
Total 7 years .....	104,602	2,191	8,823	20·95	84·35

It will be seen that the highest rate of mortality has occurred in the cavalry of the line, and the lowest among the horses of the royal engineers; but the numbers are much too small to justify any positive conclusions on the subject. The household cavalry had the highest proportion of horses cast, and the royal engineers the lowest.

In 1838, Assistant-surgeon H. Marshall, of the 7th Dragoon Guards, published\* a report on the vital statistics of the horses of that regiment for the eight years 1830-37. The aggregate strength for that period was 2,016; the deaths were 58, and the numbers cast 168, being in the ratio of 28·77 and 83·22 per 1,000 of strength. These ratios correspond very closely with those of the French army for the quinquennial period 1862-66. Of the deaths, 23 were caused by lung disease, 6 by glanders, 3 by farcy, 6 by diseases of the nervous system, and 12 were shot on account of fractures. Of the horses cast, 67, or upwards of one-half, were for lameness, 33 as worn out, 22 for blindness, 20 as broken-winded, 14 for

\* "Edinburgh Medical and Surgical Journal," vol. xlix, p. 467.

unhealthy constitution, 8 for vice, and 3 for slowness of pace. The numbers are much too small to admit of any conclusions being drawn from them, but they are brought to notice as being, so far as I am aware, the only information of the kind which has been published respecting the causes of mortality and casting in the British army; and it will be seen that the paper was published at a date considerably anterior to the establishment of the statistical returns of the French army.

The French statistics afford another striking instance of the value of the numerical method in the investigation of questions relating to health. The system first adopted by the British Government in 1836, in the inquiries then instituted into the sanitary condition of the troops, was followed by the French military authorities, in 1843, as already stated, with regard to the horses of the army, and with equally striking results. We are not aware whether any similar investigation has ever been made in our army into the condition of the horses, the losses experienced by death and casting, and their causes, but if it has, the results have never been published. That such an inquiry should be undertaken is very desirable in the interests alike of science and economy. It is not to be expected that as great and important a reduction can be effected in our army as has been done in the French, because already the proportion of deaths and casting is comparatively low, but it is very probable that some improvements might be introduced and consequent saving made, and that the experience of the army might be turned to useful account in civil life. A careful inquiry of this nature is rendered more necessary at present in consequence of the recent step taken by Government of purchasing Hungarian horses for the cavalry, for it is only by means of statistical returns that the practical value of this can be ascertained. An accurate comparison of the sickness, mortality, casting, and proportion constantly non-effective of the British and foreign horses respectively, at the same ages, can alone settle this question.

The marked reduction in the loss by glanders in the French army since the rule was enforced of killing all infected horses as soon as the nature of the disease has been ascertained, gives valuable support to the practice established of late years in this country with reference to the immediate destruction of glandered horses. The diminution in the mortality by inflammation of the lungs and pleura, also furnishes important evidence of the advantages to be derived from sanitary improvements in the management of horses. There are still some important points on which further information is required—such, for instance, as the proportion constantly non-effective from injuries and disease—which could be



well and easily cleared up by a system of returns to be periodically furnished by the veterinary surgeons of the army. We trust that the Secretary of State for War will cause some such measures to be introduced, and we have no doubt that under such a system, the veterinary department will soon add very materially to the existing information, and will establish for itself a reputation as a corps of scientific observers.

## APPENDIX.

TABLE I.—*Showing the Strength of Cavalry Horses in the French Army Serving at Home, the Number of Deaths, and the Number Cast, in each Year from 1837 to 1866 inclusive.*

Year.	Strength.	Died.	Cast.	Ratio per 1,000 of Strength.	
				Died.	Cast.
1837 .....	33,878	3,232	2,321	95·40	68·51
'38 .....	34,987	3,569	2,588	102·01	73·97
'39 .....	36,370	3,799	2,579	104·45	70·91
'40 .....	35,045	3,897	3,030	111·20	86·46
'41 .....	61,563	7,726	3,033	125·50	49·27
'42 .....	60,637	6,521	4,588	107·56	75·66
'43 .....	53,701	3,957	3,411	73·67	63·52
'44 .....	50,809	3,613	3,681	71·11	72·45
'45 .....	47,488	3,613	3,281	76·08	69·09
'46 .....	44,584	3,018	3,420	67·69	76·71
'47 .....	44,883	2,413	3,539	53·76	78·85
'48 .....	57,146	3,592	3,393	62·86	59·37
'49 .....	67,306	3,687	9,100	54·78	135·20
'50 .....	60,726	3,217	7,028	52·97	115·73
'51 .....	56,243	2,518	3,768	44·77	66·99
'52 .....	55,025	2,191	4,552	39·82	82·73
'53 .....	54,974	2,527	5,711	45·97	103·88
'54 .....	62,871	3,831	3,618	60·93	57·55
'55 .....	68,073	4,135	3,186	60·74	46·80
'56 .....	71,270	4,659	6,595	65·37	92·53
'57 .....	55,944	2,074	5,300	37·07	94·74
'58 .....	50,959	1,464	3,288	28·73	64·52
'59 .....	62,603	3,374	4,698	53·89	75·04
'60 .....	63,160	1,875	7,056	29·69	111·72
'61 .....	59,159	1,657	4,918	28·01	83·13
'62 .....	53,076	1,377	4,666	25·94	87·91
'63 .....	50,596	1,438	3,807	28·42	75·24
'64 .....	48,414	1,377	3,114	28·44	64·32
'65 .....	50,619	1,494	5,073	29·51	100·22
'66 .....	48,458	1,231	4,613	28·50	95·20
Total for 30 years..	1,600,567	93,076	128,955	58·15	80·57

TABLE II.—*Showing the Strength of Horses in the French Army Serving in France, the*

Ages ....	Four.			Five.			Six.			Seven.			Eight.		
Year.	Strength	Died.	Cast.	Strength	Died.	Cast.	Strength	Died.	Cast.	Strength	Died.	Cast.	Strength	Died.	Cast.
1847.....	4,441	282	127	5,219	250	115	4,644	326	141	4,071	239	193	3,433	189	179
'48.....	5,547	346	75	8,812	673	123	8,668	595	174	6,506	422	202	4,688	315	189
'49.....	4,876	255	61	8,491	414	338	12,474	767	948	9,438	576	839	7,032	404	631
1850.....	4,069	297	68	6,531	358	175	8,497	431	484	9,729	565	817	7,377	450	757
'51.....	4,131	273	50	5,398	294	107	5,796	281	185	6,985	349	297	8,290	372	446
'52.....	4,367	292	33	5,396	217	132	5,721	258	214	5,373	229	296	5,999	221	337
'53.....	5,565	478	35	5,717	308	113	5,811	271	235	5,105	231	325	4,827	227	327
'54.....	10,337	953	80	9,750	734	139	8,052	452	188	7,006	354	237	5,225	253	255
'55.....	8,014	537	37	13,338	924	247	11,280	783	289	8,509	499	274	5,730	384	225
'56.....	7,286	434	43	9,268	539	195	13,150	908	729	11,252	751	750	7,471	543	657
'57.....	4,698	238	54	6,641	245	226	7,678	254	405	10,317	379	757	7,772	284	680
'58.....	3,673	118	18	4,961	178	123	5,960	178	225	6,544	177	291	8,285	269	451
'59.....	5,920	441	88	8,797	661	318	9,125	539	359	8,476	454	451	6,902	317	534
1860.....	3,650	141	45	7,125	229	298	8,930	313	647	8,725	251	725	7,349	190	683
'61.....	3,278	161	38	4,379	183	56	6,685	187	271	8,133	198	495	7,196	169	446
'62.....	2,651	79	16	4,367	146	65	4,541	114	129	6,042	148	290	6,317	157	434
'63.....	3,103	109	14	3,710	143	44	4,226	144	99	4,687	104	183	5,231	128	293
'64.....	3,017	154	6	4,094	175	48	3,889	126	75	4,193	112	107	3,496	82	109
'65.....	3,609	192	11	4,316	144	30	4,101	129	88	4,365	114	135	3,941	104	181
'66.....	3,851	179	14	4,972	167	43	4,547	107	90	4,175	88	145	3,907	78	123

\* The cast in this column include

TABLE III.—*Showing the Strength, the Deaths, and the Number Cast, of Horses in the French Army in each Quinquennial Period from 1847 to 1866, and at each Age.*

Period	1847-51.			1852-56.			1857-61.			1862-66.		
Ages.	Strength.	Died.	Cast.	Strength.	Died.	Cast.	Strength.	Died.	Cast.	Strength.	Died.	Cast.
Years												
4....	23,064	1,453	381	35,569	2,694	228	21,219	1,099	243	16,230	713	61
5....	34,451	1,989	858	43,469	2,722	826	31,903	1,495	1,021	21,458	775	230
6....	40,079	2,400	1,932	44,014	2,672	1,655	38,378	1,469	1,907	21,292	620	481
7....	36,729	2,151	2,348	37,245	2,064	1,882	42,195	1,459	2,719	23,447	566	860
8....	30,820	1,730	2,202	29,252	1,628	1,801	37,504	1,229	2,794	22,873	549	1,140
9....	25,452	1,337	2,054	28,783	1,350	2,053	32,965	1,059	2,772	23,494	538	1,462
10....	21,676	928	17,053	24,569	1,062	15,217	27,866	817	13,804	23,468	524	17,039
11....	19,447	749	—	21,333	881	—	21,399	598	—	22,997	531	—
12....	17,778	707	—	17,961	754	—	15,516	422	—	22,314	575	—
13 & upwards	36,808	1,983	—	30,018	1,516	—	22,880	797	—	53,590	1,526	—
Totl.	286,304	15,427	26,828	312,213	17,343	23,662	291,825	10,444	25,260	251,163	6,917	21,273

Deaths, and the Numbers Cast in each Year from 1847 to 1866 inclusive, arranged by Age.

Nine.			Ten.			Eleven.		Twelve.		13 and upwds.		Total.		
Strength	Died.	Cast.	Strength	Died.	Cast.*	Strength	Died	Strength	Died.	Strength	Died.	Strength.	Died.	Cast.
2,935	150	207	3,462	156	2,577	4,263	198	4,475	226	7,940	397	44,883	2,413	3,539
3,950	220	165	3,350	143	2,465	3,622	163	4,166	195	7,837	520	57,146	3,592	3,393
5,597	371	633	4,580	203	5,650	3,630	110	3,418	119	7,770	468	67,306	3,687	9,100
5,988	290	619	4,946	222	4,108	3,766	148	2,704	82	7,119	374	60,726	3,217	7,028
6,982	306	430	5,338	204	2,254	4,166	130	3,015	85	6,142	224	56,243	2,518	3,768
8,069	298	528	3,917	199	3,012	4,382	174	3,635	128	6,166	175	55,025	2,191	4,552
5,772	206	488	6,640	262	4,188	5,484	197	4,096	135	5,957	212	54,974	2,527	5,711
4,552	222	251	4,102	183	2,468	4,683	212	3,774	170	5,390	298	62,871	3,831	3,618
4,608	242	226	3,582	162	1,888	3,264	123	3,648	165	6,100	316	68,073	4,135	3,186
5,782	382	560	4,328	256	3,661	3,520	175	2,808	156	6,405	515	71,270	4,659	6,595
5,618	215	549	4,213	137	2,629	3,166	99	2,163	81	3,678	142	55,944	2,074	5,300
6,786	162	393	5,041	116	1,787	3,461	82	2,477	64	3,771	120	50,959	1,464	3,288
7,043	353	628	5,575	199	2,320	3,762	139	2,822	88	4,181	183	62,603	3,374	4,698
6,921	162	729	6,885	217	3,929	5,116	113	3,469	81	4,990	178	63,160	1,875	7,056
6,597	167	473	6,152	148	3,139	5,894	165	4,585	108	6,260	174	59,159	1,657	4,918
5,882	140	391	5,631	118	3,341	4,893	109	4,945	136	7,807	230	53,076	1,377	4,666
5,702	132	457	5,235	130	2,717	4,904	118	4,466	124	9,332	306	50,596	1,438	3,807
4,682	91	240	5,344	120	2,529	4,451	115	4,128	88	11,120	314	48,414	1,377	3,114
3,645	100	187	4,369	99	4,441	4,940	129	4,499	126	13,010	357	50,619	1,494	5,073
3,611	75	187	2,952	57	4,011	3,853	60	4,353	101	12,435	319	48,458	1,231	4,613

horses of 10 and upwards.

## DISCUSSION on SURGEON-GENERAL BALFOUR'S PAPER.

THE CHAIRMAN (Sir R. W. Rawson, K.C.M.G.), in expressing the thanks of the Society to Surgeon-General Balfour, echoed the concluding sentences of the paper, and expressed the hope that the War Office authorities would cause some such measures to be introduced as would enable them to apply to these most important arms of our military service, the same measures which were applied to our troops forty years ago, mainly through the exertions of Surgeon-General Balfour and his colleagues. The commission, of which General Tulloch and Surgeon-General Balfour were members, had the satisfaction of materially improving the condition of our troops in our own country, and in our colonies, and he trusted that the exertions of Surgeon Balfour with respect to the vitality of cavalry horses, would have the same beneficial result. The subject was one in which the public generally would take a lively interest.

Mr. WALFORD thought it somewhat unfortunate that two such highly important papers as those of Surgeon-General Balfour and Professor Leoni Levi should have been set down for the same evening. When offices for the insurance of horses were started some few years ago, he took some trouble to obtain statistics of deaths and sickness of horses. Extended inquiries were made in several quarters, but he found that the statements with regard to the diseases, and consequent mortality, were so divergent, that it was impossible to compile any authentic statistics. Now, for the first time, we had something authentic on which to work. From a national point of view, it was very important that the statistics of the horses employed in the army service should be examined, as those familiar with the army estimates would know. France had been spoken of, and certainly that country had one interest in this question which did not exist in this country, namely, that horse flesh was, to a greater extent, he believed, than was generally expected, used as an article of human food. He had found, on inquiry, that in parts of France horse flesh formed a considerable item in the food of the population. He thought the Society, and the public generally, owed the author of the paper a debt of gratitude.

General Sir F. W. FITZWYGRAM, Inspector-General of Cavalry, thought the author of the paper was in error in saying that there were no statistics of the vitality, &c., of horses in the British army, for he believed that the whole of the information required would be found at the office of the principal Veterinary Surgeon. With regard to the casting of horses in our army, the Secretary of State for War allowed a certain percentage, viz., 10 per cent., each year for castings. Regiments generally cast up to the allowed percentage, and hence the uniformity which would be found in the returns. He thought the percentage, when compared with the ordinary wear and tear of horses, was very creditable to the veterinary department and the officers of our army. He had taken some interest and trouble in this question, and upon consulting several London cabmen, he found that the usual wear of cab horses in London was about two and a-half years. He found that omnibus horses ran from three to three and a-half years, but the exact number could, doubtless, easily be obtained from the London General Omnibus Company. Messrs. Leny, who were the carriers for the Great Western Railway, got five years' work out of their horses, but this was rather a fast traffic. He had also had an interview with Messrs. Reid, the brewers, and he found that their horses, which were uncommonly well cared for, worked for about nine years. After many inquiries, he had not found that any large body of horse owners got a larger average life than in the cavalry of this country. Cavalry horses last, on the average, for ten years, and the work which they do is not draft, but carrying on their back an average weight of 20 stone. He noticed that in the French army glanders amounted to 3,000 a-year, but in the English army, he thought 30 a-year from that cause would be nearer the mark. With regard to the alleged tendency of horses from grass to suffer from diseases, it was



hardly his experience that a large number of horses did so suffer. With respect to officers' horses, his own experience was that they suffered more from disease than the troopers' horses, a fact which was creditable to the service rather than to the immediate owners.

Mr. G. FLEMING said they must all feel extremely indebted to Surgeon-General Balfour for his paper. He thought information as that which had been derived from French sources could be obtained in this country; but as it had not been called for by the Government, it had not been given to the general public. He had looked through our army returns very carefully, and he had found an astonishing improvement in the condition of the cavalry horses during the last thirty or forty years. At an early period in the present century, glanders—a most disastrous malady, which was, to all intents and purposes incurable—was so very prevalent, that whole troops of horses had to be shot; but now, in consequence of the disease being better understood, a great improvement had been effected. The importance of the disease was very largely owing to its contagious properties, and the only thing was to destroy at once the animal in which it appeared. The deaths from glanders among British cavalry horses in the year before last was, he thought, only 2 per cent., which showed what an improvement had resulted from a better understanding of the disease. The greatest percentage of loss among the horses of the British army was from diseases of the stomach and intestines, whereas in France the highest mortality was owing to diseases of the lungs and the air passages, which was probably due to the bad ventilation existing in the French cavalry stables. He found that in the last three years the strength of the horses in the British army was 15,629, of which 8,731 were treated, the average being 55.86. Of these, 8,102, or a percentage of 51½, were cured. The average annual number which was supposed to be incurable was 198.3, or a percentage of 1.26, and the average number of deaths for the period was 180, or a percentage of 1.14—a remarkably small percentage in comparison with that of the French army—and the average number destroyed had been 114, or .73 per cent. Heretofore the classification in the English cavalry had not been so good as it should be, but they were now at work improving that matter, and he thought that information of interest with regard to our army horses would soon be accessible. So far as he was concerned, he would take good care that all the information of interest that could possibly be given should be afforded. The highest mortality was chiefly among young horses, the great mistake having been the purchase of 3-year old horses. Owing, however, principally to the exertions of General FitzWygram, horses under 4 years of age were not bought now, and he trusted that this raising of the standard would have the effect of lessening the rate of mortality.

The CHAIRMAN said they were much obliged to General FitzWygram and Mr. Fleming for the information they had given, showing that the necessary information was actually in existence. It was just the same in the case of our troops forty years ago, when

twenty years' information was found to be accessible. He congratulated Surgeon-General Balfour on having brought forward such an interesting paper.

Surgeon-General BALFOUR expressed his gratification at the manner in which the subject he had brought before the Society had been received, and the interest it had excited. On one point Sir F. FitzWygram had misapprehended him: he had not intended to deny the existence in the War Office of statistics on the subject: he had merely said that he was not aware whether any existed, as none had ever been published. With regard to the difference in the rate of mortality of the officers' horses as compared with the troopers in the French and British armies respectively, in the former the horses were the property of the State, but in the latter of the individual officers. Possibly the greater loss in the British service might be accounted for by the negligence of over-paid grooms. Mr. Fleming's remarks on the low rate of mortality were based on the returns of three years only, but it would be found that the average of eight years amounted to 2 per cent. It was necessary to have a sufficient number of horses under observation to get rid of accidental irregularities in the numerical results, and where the numbers were small, this could only be done by extending the period of observation.

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## TEN YEARS' STATISTICS of BRITISH AGRICULTURE, 1870-79.

By CAPTAIN PATRICK GEORGE CRAIGIE,  
*Secretary of the Central Chamber of Agriculture.*

[Read before the Statistical Society, 11th May, 1880.]

## CONTENTS :

	PAGE		PAGE
I.—Value of the Annual Agricultural Statistics .....	275	VI.—Changes in the Number of Live Stock .....	288
II.—Classification of Areas .....	276	1. Horses .....	288
III.—Distribution of the Surface of the Country .....	279	2. Cattle .....	291
IV.—Ten Years' Changes in Cultivated, Arable, and Pasture Land .....	280	3. Sheep .....	294
V.—Changes in Particular Crops .....	283	VII.—Size of Farms .....	296
1. Wheat .....	285	VIII.—Number and Acreage of Holdings .....	299
2. Barley .....	286	IX.—Changes in Rent .....	304
3. Oats .....	287	X.—Summary .....	306

I.—*Value of the Annual Agricultural Statistics.*

TWELVE years have passed since Mr. Caird, in an able paper, invited the attention of this Society to the then recently established official statistics of British agriculture, and the lessons and deductions to be drawn from yearly figures. The value of this register of our agricultural position at home is now universally admitted, and our gratitude to Mr. Caird for the part he took in Parliament in procuring the now familiar annual blue book deserves prominent expression. The unreasoning and ignorant objections to the filling up of the required forms which for some time in the southern and midland districts of England retarded the completeness of the information now furnished may be said, with advanced intelligence, to have been very largely overcome. Especially is to be noted that the apprehension of unpleasant fiscal consequences with which at the outset many occupiers of land viewed the request to give information respecting their business affairs, through the agency of officers of the inland revenue department, is fast dying away; and English farmers are much more generally being brought to concur in the opinion, long held by their fellow agriculturists in Scotland, that the inquiry is in no respect inquisitorial or likely to divulge matters prejudicial to tenant farmers, or to compromise in any way individual interests.

For only 1,612,143 acres of land in Great Britain, or but 5 per

cent. of the acreage under all kinds of crops, fallow, or grass, is it now necessary to resort in any way to estimate. Under these circumstances, at a moment when agriculture stands foremost in the matters of domestic concern, in indicating the course during the past decade of this greatest of all our industries, I may, to a very large extent, rely on the official figures which Mr. Giffen is now able to place before the country with greater promptitude and accuracy than has ever heretofore been achieved. Much has been written and much spoken on British agriculture within the past three years: it will be the simple aim of this paper to furnish, I fear but crudely, some of the data which it is above all things desirable to have as starting points in new agricultural discussions. It may be thought that the existence of the data in the pages of the ten blue books of the period before us should suffice for this purpose, but I believe I may profitably bring together to-night some of the facts spread over a variety of separate papers, and although but imperfectly, still in some measure so arrange them as to lead to suggestive criticism.

The first matter that we have to realise in a survey of this sort is the extent of the area with which we have to deal.

It is perhaps not an absolutely exact statement to say that the area of the United Kingdom remains necessarily identical in the whole period under review. Round the coast no doubt occasionally there is going on here and there an accretion and here and there a loss of territory. Slight alterations, however, such as the growth of Sunk Island, on the Humber, or the inroads suffered on the Norfolk coast, scarcely affect the official total.

It is perhaps necessary to explain that, according to the ordnance survey figures which are relied on in the yearly statistics, the only recorded changes in the area of the United Kingdom during the past decade are the rise from 77,514,000 acres to 78,011,000 acres in 1872, wholly due to a rectification made in Ireland at the time of the census, and a subsequent drop the following year from 78,011,000 acres to 77,829,000 acres, at which the total now stands. The last reduction may be accounted for by an addition of 7,000 acres in England, a diminution of 12,000 acres in Wales, a falling off of fully 143,000 acres in Scotland, and a relatively considerable reduction in the area credited to the Isle of Man, all of which may probably be attributed to the greater accuracy of the ordnance returns. For any reference to the total area I have preferred to employ the latest figure only as the most exact.

## II.—*Classification of Areas.*

Starting, then, with a knowledge of the area to be considered, the first question that occurs to an investigator is the extent of that



area which is under cultivation; and it is interesting here to discriminate between the ratios of cultivated land possessed by the different sections of the United Kingdom, due, as this feature usually is, to climatic, geological, or geographical considerations. And here and throughout the whole of this paper I have attempted to carry the comparison of the position of matters at the beginning and end of the period under review further than a mere enumeration for the four great divisions of the United Kingdom—England, Wales, Scotland, and Ireland. For the last three of these I am compelled, by regard to the time and space at my disposal, to take only the general results, but for England herself I have attempted a somewhat narrower scrutiny, grouping into three separate agricultural zones or sections the forty-two counties which form the units of the official statistics.

I must here explain why I have somewhat departed from the customary plan of longitudinally dividing England simply into an eastern, or “corn,” and a western, or “grass” half, as was done by Mr. Caird in 1850-51, and as is done annually in the agricultural returns of the Board of Trade. I must explain also why it is that in adopting a triplicate division of England I have not strictly followed the classification of the several counties in the “corn,” “mixed,” and “pastoral” groups indicated by Mr. Giffen in the valuable tables appended to the official returns of 1879. One other explanation, too, must be offered in reference to the variation of method in the maps presented herewith from those interesting ones furnished by Mr. Purdy in vol. xxxi of our *Journal*, in 1868.

I cordially agree with the opinion expressed in that volume that a geographical and not a merely mechanical or alphabetical arrangement ought to be adopted in this matter, and this will explain my slight divergence from Mr. Giffen’s classification this year. I am not at all indifferent to the advantages, for which Mr. Purdy contended in 1868, of following the same divisions for agricultural as for poor law, and registration, and census purposes, and if I do not follow it, it is because I am anxious to attain a more strictly agricultural congruity in the counties grouped together than was possible in the maps then given. However generally convenient the Registrar-General’s divisions are for most purposes, I cannot view with satisfaction an arrangement which unites, for example, such grass counties as Derby—where arable land forms but 19 per cent. of the whole area—with corn counties such as Lincoln, where about 60 per cent. is thus occupied. In order, therefore, to avoid linking such agricultural opposites, and striking a common average for a “North Midland Division,” comprising both, I have ventured to make a simpler triplicate division. The five eastern counties of Cambridge, Hunts, Norfolk, Suffolk, and

Essex, I have regarded, as the agricultural returns for 1879 also do, as pre-eminently corn counties, and have designated them my *first corn district*. Of these over 64 per cent. is now under the plough, and only 18 per cent. is in permanent pasture. Moving westward, I draw another line from the Yorkshire coast to that of Hampshire, enclosing a second belt of counties, where also corn growing, though on the whole less markedly, predominates, and this larger area I call my *second corn district*. Throughout this the average area under the plough will just exceed 50 per cent. and that in grass just fall short of 30 per cent.

These two areas together make up the *arable district* of England, which very nearly coincides with the longitudinal "corn" division, for some time back given in the yearly blue book. Thus combined, the whole eastern area displays an average of 55 per cent. of arable land, and 26 per cent. in permanent pasture.

All to the west of the last drawn line up to the Welsh boundary I take to be more or less correctly viewed as the *grass district* or pastoral belt of English soil. It covers, doubtless, a large area, but its general characteristic is that in contradistinction to the figures just quoted, it has only got 29·7 per cent. of its area under the plough, while it has 41 per cent. occupied by permanent grass.

It will be seen by reference to the map, that I am compelled in thus adopting a geographical rather than a simply arithmetical grouping of counties to include in the arable area the somewhat isolated counties of Surrey and Middlesex, whose place should strictly be to the west of the central line, while I balance this inequality by another in not including Cornwall in the corn area, for which its percentages qualify it. This exchange, for convenience sake, occurs also in the customary official grouping into "corn" and "grazing" counties, and indeed my complete *arable* and *grass districts* would altogether coincide with that arrangement, but for the fact that I include to the east of my line of division the county of Wilts, and exclude the county of Warwick. Geographical and other local reasons decide me in doing this, and it should be noticed that the arable land of Wilts is very nearly half its whole area (48·4), while that of Warwick is less than two-fifths of its area (39·7). Warwick also, with its 46 per cent. of grass, seems to me to be more fitly placed among the grass counties than Wilts, where the permanent grass is but 39 per cent.

Mr. Caird's line between corn and grass differed still more considerably from that adopted officially than does mine. It included Northumberland, Durham, and part of Yorkshire on the north, and Dorset in the south as corn counties; while it classed Notts, Rutland, Northampton, Oxford, and part of Wilts as grass counties. This may have been right in 1850, but I do not think it will now apply.

III.—Distribution of the Surface of the Country.

Assuming that I have justified my departure from precedent, I will invite attention to the changes which have taken place in the modes of utilising the agricultural area of the several divisions of England just enumerated separately, and of each of the other divisions of the United Kingdom collectively in the ten years which have elapsed since 1870. The subjoined table exhibits the particulars as to total area, cultivated area, arable land and pasture, for the following distinct areas, to which, wherever practicable, I propose to refer all other facts, viz.:—

- (1.) Five counties of England called the *First Corn District*.
- (2.) Sixteen counties of England called the *Second Corn District*.
- (3.) Twenty-one counties collectively as the *Arable District* of this division of the United Kingdom.
- (4.) Twenty-one pastoral counties of England called the *Grass District*.
- (5.) England as a whole.
- (6.) Wales.
- (7.) Scotland.
- (8.) Great Britain.
- (9.) Ireland.
- (10.) The Isle of Man and Channel Islands.
- (11.) The entire United Kingdom.

Distribution of Surface.

[000's omitted.]

Total Area, 1879.		Cultivated Area.		Arable Land.		Pasture.	
		1870.	1879.	1870.	1879.	1879.	1879.
Acres.		Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
4,116,	I. Corn district ....	3,259,	3,382,	2,617,	2,639,	642,	743,
10,392,	II. „ „ .....	8,078,	8,336,	5,321,	5,267,	2,756,	3,069,
14,508,	Arable district .....	11,337,	11,718,	7,938,	7,906,	3,398,	3,812,
18,089,	Grass „ .....	12,072,	12,786,	5,791,	5,364,	6,282,	7,422,
32,597,	England .....	23,409,	24,504,	13,729,	13,270,	9,680,	11,234,
4,722,	Wales .....	2,548,	2,759,	1,120,	985,	1,428,	1,774,
19,496,	Scotland .....	4,451,	4,713,	3,486,	3,554,	965,	1,159,
56,815,	Great Britain .....	30,408,	31,976,	18,335,	17,809,	12,073,	14,167,
20,820,	Ireland .....	15,653,	15,336,	5,662,	5,138,	9,991,	10,198,
194,	{ Isle of Man and } { Channel Islands }	116,	125,	95,	93,	21,	31,
77,829,	United Kingdom ....	46,177,	47,437,	24,092,	23,040,	22,085,	24,396,

Here it is well to recognise the relative dimensions of the three belts or sections of English territory accounted for. The first corn district contains but an eighth of the entire area. The second corn district covers about a third, while more than half of England lies in the grass district. The percentages of the total area under cultivation at the beginning and end of the decade, and the percentage in arable and pasture respectively at these dates, appears from the following table:—

*Percentages of Total Area.*

	Cultivated.		Arable.		Pasture.	
	1870.	1879.	1870.	1879.	1870.	1879.
I. Corn district .....	79·2	82·2	63·6	64·1	15·6	18·1
II. „ .....	77·7	80·2	51·2	50·7	26·5	29·5
Arable district .....	78·1	80·8	54·7	54·5	23·4	26·3
Grass „ .....	66·7	71·2	32·0	29·7	34·7	41·0
England .....	71·8	75·2	42·1	40·7	29·7	34·5
Wales .....	54·0	58·4	23·7	20·9	30·2	37·5
Scotland .....	22·8	24·2	17·9	18·2	4·9	5·9
Great Britain .....	53·5	56·3	32·3	31·3	21·2	24·8
Ireland .....	75·2	73·7	27·2	24·7	48·0	49·0
Isle of Man and Channel Islands .....	59·8	64·4	49·0	47·9	10·8	16·0
United Kingdom .....	59·3	61·0	31·0	29·6	28·4	31·3

#### IV.—*Ten Years' Changes in Cultivated, Arable, and Pasture Land.*

The first of the changes to be noted in the period 1870-79 is the growth in the cultivated surface. This is due, as has been explained in the yearly reports, to more accurate returns, as well as to a real extension of agricultural operations. It is general everywhere in all three districts of England, and in the rest of the United Kingdom save only in the case (so often exceptional) of Ireland. But the Irish falling off is, I believe, rightly ascribed to a technical cause, the more correct classification of certain mountain pastures as waste rather than cultivated territory. As Mr. Giffen has indicated, it is difficult to draw the line between cultivated and uncultivated land, and it may be doubted whether the distinction now shown, particularly in Scotland, represents the practical position of matters. For my own part, I am disposed to believe that it would be well somewhat more widely to extend the definition of cultivated land, and give us, so far as may be, all land, mountain or other, actually used in the agricultural economy of the country in the process of feeding sheep or cattle.

Taking, however, the figures given as to increased “cultivation,”



the following table shows the changes of the past ten years, and indicates where the chief increase of area has arisen. Any reference to the apparent growth of pasture must be, however, subject to the caution of the last Agricultural Blue Book, that it is possibly to some extent a reclassification of land formerly reckoned under rotation grasses.

[000's omitted.]

	Cultivated Area.		Arable.		Pasture.	
	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
I. Corn district .....	123,	—	22,	—	101,	—
II. „ .....	258,	—	—	54,	313,	—
Arable district .....	381,	—	—	32,	414,	—
Grass „ .....	714,	—	—	427,	1,140,	—
England .....	1,095,	—	—	459,	1,554,	—
Wales .....	211,	—	—	135,	346,	—
Scotland .....	262,	—	68,	—	194,	—
Great Britain .....	1,568,	—	—	526,	2,094,	—
Ireland .....	—	317,	—	524,	207,	—
Isle of Man, &c. ....	9,	—	—	2,	10,	—
United Kingdom .....	1,260,	—	—	1,052,	2,311,	—

One and a quarter million more acres are now therefore accounted for in the United Kingdom, and virtually the whole of this addition takes the form of permanent grass—a classification which has grown also by the application of this less labour-involving form of husbandry to another million acres formerly under the plough. It does not seem generally to have been recognised that it is in Ireland alone that half this transformation has been effected, and a glance at the last given table makes it plain that the disposition to convert corn land into grass, as alluded to in Mr. Giffen's report in 1879, is almost wholly to be found in pastoral districts.

In the most conspicuously corn area of England we have actually 22,000 acres more arable land, and in Scotland, where the plough is always in favour, 68,000 acres. The entire falling off to the east of my line between the arable and grass districts of England is altogether insignificant. While reduction of arable land in England generally has been a matter of 3·3 per cent., and the ratio of falling off in the whole arable area is less than 1 per cent., in the grass district it is 7·4 per cent. In Wales it has been 12 per cent., in Ireland over 9 per cent. There is not quite so much difference in the rate at which cultivation appears to extend.

The arable half of England shows additions that represent an increase of less than  $3\frac{1}{2}$  per cent., while the grass region has 6 per cent. more of its total surface in cultivation than in 1870. More permanent pasture is accounted for by some 12 per cent. in the arable area, but this contrasts with fully 18 per cent. more in the pastoral district. The growth of permanent grass is unmistakably to be found mainly in districts most suited to grass growing, for, with a single exception, all the western counties exceed the average increase, and with very few exceptions all the eastern fall below it.

In Table I, in the appendix, will be found a total of the English counties in the order of precedence suggested by the relative extent of their cultivated area in 1879, with relative figures for 1870, and the increased percentage of total area now appearing in the returns.

To the three south-western counties of Devon, Cornwall, and Somerset, must be ascribed the largest additions to the area of cultivation: there being in the case of the first of these counties upwards of 7 per cent., in the second upwards of 6 per cent., and in the third  $5\frac{1}{2}$  per cent. more of their surface now accounted for as under crops, fallow, or grass. Bucks, Notts, Hertford, Durham, Bedford, Berks, and Kent add less than 2 per cent., while the Gloucestershire additions are slightly below 1 per cent.

To obtain a clear view of the relative character of the agriculture of the several sections of the country, I have thought it well here to interpolate a table of the percentage, not of the absolute, but of the cultivated area:—

*Percentage of Cultivated Area.*

	Arable.		Pasture.	
	1870.	1879.	1870.	1879.
I. Corn district .....	80·3	78·0	19·7	22·0
II. „ „ .....	65·9	63·2	34·1	36·8
Arable district .....	70·0	67·5	30·0	32·5
Grass „ „ .....	48·0	42·0	52·0	58·0
England .....	58·6	54·1	41·4	45·9
Wales .....	44·0	35·7	56·0	64·3
Scotland .....	78·3	75·4	21·7	24·6
Great Britain .....	60·3	55·7	39·7	44·3
Ireland .....	36·2	33·5	63·8	66·5
Isle of Man, &c. ....	81·9	74·4	18·1	25·6
United Kingdom .....	52·2	48·6	47·8	51·4

Here the strongly marked divergence of the two corn districts and the grass district of England becomes very clearly apparent, and I would invite attention to the difference in the Scotch figures thus indicated; while Scotland has only 18 per cent. of her whole area under the plough, she still has, after a 3 per cent. reduction in the ten years, 75 per cent. of her so-called cultivated area still in the condition of arable land—a higher percentage than appears in any one of the eleven sections under which I have grouped our information.

It may be noted as a distinct and characteristic effect of the ten years' changes and extension of cultivated area, that whereas in the United Kingdom, as a whole, rather more than half of that area was in 1870 accounted arable, and rather less pastoral, now the positions are almost exactly reversed, and the pasture exceeds the arable by just about the same relative proportions.

#### V.—*Changes in Particular Crops.*

A ten years' retrospect of our agricultural statistics furnishes interesting confirmation of those changes in cropping which are usual matters of remark, and it may be well to see how these minor movements correspond with the general changes which I have just noted.

That we grow less wheat and more barley, is on every hand said. The question I propose to ask of the official oracle is, how much less and how much more respectively, and where the chief alteration is going on?

According to the tables supplied in the last agricultural returns, the land under corn of all sorts in England has dropped from 23·2 per cent. of the total area to 21·8 per cent. since 1870. I believe that only two counties have at this moment a larger percentage of corn than they had ten years ago, and in neither is the abnormal increase important. Suffolk accounts now for 40·3 per cent. of its surface under corn in place of 39·7 per cent., and Lincoln for 35·1 in place of 34·9. The following table exhibits the falling off in the corn area for the several sections of the country:—

*Changes in Corn-Cropped Land.*

[000's omitted].

	1870.	1879.	Decrease.	Decrease.
	Acres.	Acres.	Acres.	Per cent.
I. Corn district .....	1,606,	1,577,	29,	1·8
II. „ .....	3,056,	2,940,	116,	3·8
Arable district .....	4,662,	4,517,	145,	3·1
Grass „ .....	2,908,	2,596,	312,	10·7
England .....	7,570,	7,113,	457,	6·0
Wales .....	554,	482,	72,	13·0
Scotland .....	1,424,	1,390,	34,	2·4
Great Britain .....	9,548,	8,985,	563,	5·9
Ireland .....	2,173,	1,762,	411,	18·9
Isle of Man, &c. ....	34,	30,	4,	11·1
United Kingdom .....	11,755,	10,777,	978,	8·3

Very nearly a million acres less of corn was therefore grown in the United Kingdom last year than at the beginning of the decade. This is practically the reduction visible in arable land generally, and as in that case Ireland, not England, is the scene of the largest proportionate change. In the period under review, the proportion of corn on the arable land is slightly diminished. Of the arable land of the United Kingdom some 47 per cent., in place of 49 per cent., is devoted to the growth of corn. In England the alteration means a reduction of the corn-bearing percentage of arable land from 55 to 53½. Still upwards of half the land under the plough grows corn. For the last two years the English green crops cover slightly fewer acres, but so far the figures go—and it must be remembered there is some little haziness about the official classification of rotation grasses—the item of clover shows an increase, while a larger breadth in fallow may be due, doubtless, to the exigencies of disastrous weather, and growingly dirty soil.

I am anxious, however, it should be noted that the check in corn growing is much more marked in some districts than in others. In the counties selected as my *first corn district* the alteration represents less than 2 per cent. of the corn area, and the reduction coincides with an increased arable area, green crops and clovers bulking more largely. In the *second* and more mixed district the percentage of decrease rises to nearly 4 per cent., but over the whole eastern and arable division of England the diminution of corn is but 3·1 per cent., against 10·7 in the grazing counties. Taking this fact in conjunction with the still larger relative falling off in Wales and Ireland, and the remarkably small falling off in



Scotland, it is clear agriculturists are not yet hurriedly abandoning the cultivation of corn in districts and soils most suited to its growth, but are stirred up, by the keen competition of America, more carefully to appropriate their land to the most distinctly suitable form of crop.

### 1. *Wheat.*

The foremost item of the corn changes is of course the smaller breadth of wheat now cultivated, and this also I have analysed in the same divisions as before. The actual alteration in each county in England is shown in Tables II, III, and IV of the appendix, and a summary of the results shows:—

#### *Wheat Changes.*

[000's omitted.]

	1870.	1879.	Decrease.	Decrease.
	Acres.	Acres.	Acres.	Per cent.
I. Corn district .....	701,	637,	64,	9'1
II. „ .....	1,356,	1,150,	206,	15'2
Arable district .....	2,057,	1,787,	270,	13'1
Grass „ .....	1,191,	932,	259,	21'7
England .....	3,248,	2,719,	529,	16'3
Wales .....	127,	95,	32,	25'2
Scotland .....	126,	76,	50,	39'7
Great Britain .....	3,501,	2,890,	611,	17'5
Ireland .....	260,	158,	102,	39'2
Isle of Man, &c. ....	12,	8,	4,	33'3
United Kingdom .....	3,773,	3,056,	717,	19'0

Here the change in the aggregate is nearly three-quarters of a million acres, and in England alone it is more than half-a-million; but as England is the only important wheat growing section of the United Kingdom, containing some nine-tenths of our wheat land, this result is to be expected. It is not, however, in England so much as in Scotland or Ireland that the largest relative abandonment of wheat appears. North of the Tweed wheat has never been a favourite crop, but five and twenty years ago Scotland had not far short of 200,000 acres of this cereal. Ten years ago this area had shrunk to the diminished figure of 126,000, and even that small section, not one acre in each 154 of the surface of North Britain, is now reduced by well nigh 40 per cent. The Irish reductions show a similar percentage of diminution. In Wales 25 per cent. less wheat appears, and, as in the case of corn generally, the least reduction in England appears in the five corn counties of the first district,

where  $15\frac{1}{2}$  per cent. of the whole area is used for wheat growing, and the most marked reduction is in the grass counties, where only 5 per cent. of the surface is thus occupied.

It should be noted that no less than 44 per cent. of the corn land of the first corn district of England is still growing wheat, as also 39 per cent. of the corn land of the second corn district, whereas of the corn land in Scotland, not 6 per cent. is in wheat; in Ireland not 9 per cent., and in Wales less than 20 per cent. The good, and in years not abnormal as of late, the profitable, character of Scotch agriculture is generally recognised. Climate alone will scarcely account for the entire diversity in practice. It would seem therefore that English farmers may much more largely than they have yet done discontinue wheat growing without entailing an agricultural catastrophe.

## 2. Barley.

Very nearly half of the surface withdrawn from wheat cultivation has been devoted to the growth of barley. The entire area of this crop is now in the United Kingdom all but equal to that of wheat. In Wales, in Scotland, and in Ireland, it is considerably more important. In Wales only is there any exception to the general increase of barley culture in the several divisions of the country. The following table of ten years' barley changes possesses several interesting features:—

### *Barley Changes.*

[000's omitted.]

	1870.	1879.	Increase.	Decrease.	Increase.	Decrease.
	Acres.	Acres.	Acres.	Acres.	Per cent.	Per cent.
I. Corn district .....	519,	602,	83,	—	16·2	—
II. „ „ .....	747,	893,	146,	—	19·7	—
Arable district .....	1,266,	1,495,	229,	—	18·0	—
Grass „ „ .....	698,	741,	43,	—	6·2	—
England „ .....	1,964,	2,236,	272,	—	13·8	—
Wales „ .....	164,	152,	—	12,	—	7·3
Scotland „ .....	244,	279,	35,	—	14·3	—
Great Britain .....	2,372,	2,667,	295,	—	12·4	—
Ireland „ .....	241,	255,	14,	—	5·8	—
Isle of Man, &c. „ .....	9,	10,	1,	—	11·1	—
United Kingdom .....	2,622,	2,932,	310,	—	11·8	—

Ireland here shows the least relative addition, and the corn districts of England the greatest. The increased acreage of barley grown in 1879 in the first corn district is greater than the

decreased area of wheat just remarked, and nearly half of the whole barley increase of the *second corn district* has occurred, as may be seen in Table III, in the county of Lincoln alone. While of the 272,000 acres of barley added in ten years to England as a whole, 130,000 acres appear in the two great counties of Lincoln and York.

### 3. Oats.

The third of the great cereal crops occupies the largest absolute area of any; but its distribution is singular. Much more than half of our oats are grown in Scotland and Ireland, in which countries this crop occupies from 25 to 30 per cent. of the arable area, and no less than 72 to 76 per cent. of the whole surface under corn. This contrasts strongly with the  $7\frac{1}{2}$  per cent. of corn land which is alone spared for oats in the first corn district of England. The favour shown towards a crop suitable to a moister and more northerly climate leads us to find it more largely in the north and west; the arable districts generally devoting 15 per cent. of their corn area to the oat crop, the grass districts giving it 28 per cent., and Wales as much as 47 per cent.

Oats, however, like wheat, have decreased in the ten years 1870-79; chiefly, however, in Ireland, where, as the following table will show, 330,000 acres less were grown in 1879 than in 1870. Although only 26,000 acres less oats are grown in the first corn district of England, the relative decrease there is nearly as great, 17·8 per cent., a figure which contrasts strikingly with the 4·4 per cent. of decrease for England as a whole, while Scotland sticks strongly to its distinctive national grain, only 14,000 acres less of oats being grown there now than ten years ago:—

#### Oats Changes.

[000's omitted.]

	1870.	1879.	Increase.	Decrease.	Increase.	Decrease.
	Acres.	Acres.	Acres.	Acres.	Per cent.	Per cent.
I. Corn district .....	146,	120,	—	26,	—	17·8
II. „ „ .....	582,	569,	—	13,	—	2·3
Arable district .....	728,	689,	—	39,	—	5·4
Grass „ .....	763,	736,	—	27,	—	3·5
England .....	1,491,	1,425,	—	66,	—	4·4
Wales .....	253,	227,	—	26,	—	10·3
Scotland .....	1,019,	1,005,	—	14,	—	1·4
Great Britain .....	2,763,	2,657,	—	106,	—	3·9
Ireland .....	1,650,	1,330,	—	330,	—	20·0
Isle of Man, &c. ....	12,	11,	—	1,	—	8·3
United Kingdom .....	4,425,	3,998,	—	473,	—	9·9

VI.—*Changes in the Number of Live Stock.*

If the changes occurring in British agriculture in the chief cereal crops are interesting, it can hardly be said the alterations in the live stock of our farms are less so. Briefly, I will endeavour to indicate, at all events as regards horses, cattle, and sheep, omitting for the present that interesting animal the pig, what ten years have done for us.

In the United Kingdom, as a whole, we possess 200,000 more horses than we did in 1870; we account for 727,000 more cattle, and we lament a reduction of 548,000 in our flocks of sheep. As I may be able to show hereafter in more detail, one class only of horses—breeding mares and unbroken horses—and only one class of cattle—young stock under 2 years of age—may be said to account for the addition to our totals, while only the older class of sheep shows any material reduction.

The course of increase has not been uniform, and generally speaking the decade 1870-79, except in the case of horses, has witnessed a rise and then a fall in the numbers of our live stock. The horses of all sorts averaged for the first three years of this period 1,750,000, for the second three years 1,790,000, while the annual average for 1876-79 has reached 1,910,000. Cattle, on the other hand, averaged in round numbers 9,430,000 head in the first three years, 10,200,000 in the next three years, reaching the maximum in 1874, while in the last four years the average sunk again to 9,863,000. Sheep also, which on the average of the years 1870-72 were 32,480,000 in number, during 1873-76 had multiplied to 33,770,000, and for the last three years they are reduced to 32,380,000.

1. *Horses.*

Taking first the changes occurring among horses—those only actually employed in agriculture, and as breeding and young stock being reckoned—the student of ten years of agricultural statistics has to notice a distinct and material increase in the numbers annually recorded. This increase is specially notable in the class which denotes an extension of horse breeding. Throughout the United Kingdom, as a whole, we have in 1879 nearly 12 per cent. more horses of all sorts than were recorded in 1870. The manner of the classification of horses in Ireland differs somewhat from that employed on this side of St. George's Channel, and deficiencies will be found in the figures I give for Ireland and for the United Kingdom, on account of my omitting the details of the classes of Irish horses, which are not in a form strictly comparable with those of England or Scotland in the years preceding 1877, although



the totals appear to have been entered without qualification in the summary of the general returns.

For Great Britain we have now 13 per cent. more horses than we had ten years ago; but while horses actually employed in agriculture have only increased by some 2 per cent. in this period, unbroken and young horses and breeding mares are more numerous by half as many again. We have in Great Britain no less than 147,000 more horses of this class than we had in 1870. No doubt this increase is due to the remunerative prices which prevailed for young horses, and to the foreign demand which has been noted. The development has been throughout steady and continuous, and it may be seen just as clearly in the years preceding the repeal of the horse duty as in those which followed 1874.

It may at first sight strike the observer as somewhat curious that horsebreeding, as shown by this column of the official tables, shows its largest relative increase in the five eastern counties, which I have designated the first and most distinctively corn district of England. Since 1870 the increase in breeding mares and unbroken horses is 60 per cent. in this area, while the average of all England shows 49 per cent. increase. Scotland only of the other divisions, where arable land again predominates in the cultivated area, approaches this percentage with an increase of 59 per cent. in its young horses and mares.

The same phenomenon characterised the addition in the corn district of England in the shorter period, 1874-79, for in that time we find the percentage of increase is 33 per cent.; so that for every three unbroken horses or mares five years ago we have now four.

There is, however, another matter to which I would like, under this head, to invite attention, and that is the tendency, in the more recent years, to add also to the number of horses employed in agricultural work. It would have been no matter of surprise if there had, on the contrary, been a falling off in this particular, which might have been set down to the use of steam machinery for cultivation; and from 1870 to 1874 we did see such a falling off. From 1874 to 1879 however the reverse process has been at work, and it is not so much in the corn growing as the less arable districts where this excess of horse power is now to be met with. In the first corn district the increase in farm horses is 3·8 per cent. since 1874, and in the whole arable half of England it is a little over 3·6 per cent., while in the grass districts it is very nearly 5 per cent., and in Wales, strangely enough, not far short of 6 per cent. :—

*Number of Horses at Three Periods.*

[000's omitted.]

	1870.			1874.			1879.		
	Used in Agri- culture.	Unbroken Horses or Breeding Mares.	Total.	Used in Agri- culture.	Unbroken Horses or Breeding Mares.	Total.	Used in Agri- culture.	Unbroken Horses or Breeding Mares.	Total.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
I. Corn district ..	133,	35,	168,	132,	42,	174,	137,	56,	193,
II. „ ..	264,	63,	372,	258,	74,	332,	267,	90,	357,
Arable district ....	397,	98,	495,	390,	116,	506,	404,	146,	550,
Grass „ .....	359,	124,	483,	349,	152,	501,	366,	185,	551,
England .....	756,	222,	978,	739,	268,	1,007,	770,	231,	1,101,
Wales .....	71,	45,	116,	69,	54,	124,	73,	63,	136,
Scotland .....	139,	34,	173,	136,	45,	181,	142,	54,	196,
Great Britain .....	966,	301,	1,267,	944,	367,	1,312,	985,	448,	1,433,
Ireland .....	—	—	474,	—	—	459,	—	—	513,
Isle of Man and Channel Islands }	7,	3,	10,	7,	2,	9,	7,	2,	9,
United Kingdom ..	—	—	1,751,	—	—	1,780,	—	—	1,955,

*Increase in Horses.*

[000's omitted.]

	Increase since 1870.						Increase since 1874.					
	Used in Agriculture.		Unbroken Horses or Breeding Mares.		Total.		Used in Agriculture.		Unbroken Horses or Breeding Mares.		Total.	
	Num- ber.	Per Cent.	Num- ber.	Per Cent.	Num- ber.	Per Cent.	Num- ber.	Per Cent.	Num- ber.	Per Cent.	Num- ber.	Per Cent.
I. Corn district	4,	3'0	21,	60'0	25,	14'9	5,	3'8	14,	33'3	19,	10'9
II. „	3,	1'1	27,	42'9	30,	9'2	9,	3'5	16,	21'6	25,	7'5
Arable district ....	7,	1'8	48,	49'0	55,	11'1	14,	3'6	30,	25'9	44,	8'3
Grass „ .....	7,	1'9	61,	49'2	68,	14'1	17,	4'9	33,	21'7	50,	10'0
England .....	14,	1'8	109,	49'1	123,	12'6	31,	4'2	63,	23'5	94,	9'3
Wales .....	2,	2'8	18,	40'0	20,	17'2	4,	5'8	9,	16'7	12,	9'7
Scotland .....	3,	2'3	20,	58'8	23,	13'3	6,	4'4	9,	20'0	15,	8'3
Great Britain ....	19,	2'0	147,	48'8	166,	13'1	41,	4'3	81,	22'1	121,	9'2
Ireland .....	—	—	—	—	39,	8'2	—	—	—	—	54,	11'8
United Kingdom	—	—	—	—	204,	11'7	—	—	—	—	175,	9'8

## 2. Cattle.

The changes which have occurred in this branch of the farmer's property are of considerable moment. At the present time there is but little short of 10 million head of cattle within the British Isles, that is to say, were they evenly spread over the United Kingdom, one ox, cow, or calf for every 7·8 acres of territory, or on the so-called cultivated area of the annual statistics, one for every 4·7 acres returned. Computed for each hundred cultivated acres of crop, fallow, or grass the proportion of cattle varies, however, somewhat considerably. The subjoined tables, carrying, as in other instances in this paper, the investigations into somewhat closer areas than the official figures, exhibit the relative head of cattle reckoned in each hundred acres, both of the entire area and of the cultivated portion of each of the several sections of the country.

*Cattle per 100 Acres.*

	1870.		1874.		1879.	
	Per 100 Acres Total Area.	Per 100 Acres of Cultivated Area.	Per 100 Acres Total Area.	Per 100 Acres of Cultivated Area.	Per 100 Acres Total Area.	Per 100 Acres of Cultivated Area.
I. Corn district	6·6	8·4	8·4	10·3	7·8	9·5
II. „	9·5	12·3	11·1	14·0	10·7	13·3
Arable district ....	8·7	11·2	10·3	13·0	9·9	12·2
Grass „ ....	13·8	20·8	15·5	22·5	15·0	21·1
England .....	11·5	16·0	13·2	17·9	12·7	16·9
Wales .....	12·8	23·7	14·0	24·8	13·6	23·3
Scotland .....	5·3	23·4	5·9	25·2	5·6	23·0
Great Britain .....	9·5	17·8	10·8	19·6	10·3	18·3
Ireland .....	18·2	24·3	19·8	26·1	19·5	26·5
Isle of Man .....	12·0	20·1	13·1	20·9	13·8	21·3
Jersey .....	38·3	58·2	40·0	60·3*	38·3	56·7
Guernsey, &c. ....	35·2	58·9	35·7	59·6	35·4	61·4
United Kingdom	11·9	20·0	13·2	21·8	12·8	21·0

\* Returns for 1875, those for 1874 not being stated.

The distribution of cattle on the total area of the different parts of the United Kingdom is remarkable. Omitting the cases of the Channel Islands (which I have given separately, as instances of the large percentage of stock kept), Ireland, it seems, bears off the palm with the highest ratio of cattle to her entire surface; the grass district of England and Wales coming next, while Scotland stands lowest in this particular, although occupying very nearly the

opposite position in respect of the cattle on its cultivated area. As the official tables do not give the ratio of stock to the whole acreage of the country, I have thought it might be useful to supplement their information by the above figures.

Another point, which must not be overlooked in this connection, is the entire failure of our returns to give us, on account of the date at which they are collected, anything like the real head of stock often to be found in the corn counties. Although, therefore, the entire stock of the country at a given date appears, it is to a great extent an accident that they appear where they do. A large portion of work of feeding cattle is done in winter in many corn counties. In Norfolk, for example, little or no summer stock is kept, and there, as Mr. Clare Read pointed out lately before a parliamentary committee, three typical stockowners, interrogated as to the number of cattle held by them in December and the number returned in June, stated that they had 414 over 2 years old in winter, but only 98 when the return was made.

These movements of cattle in the process of their manufacture into beef, from one county into another, and from Ireland into England, deprive the local apportionment of this branch of our live stock of much of its value.

Taking the figures as they stand, and bearing in mind that they are to a considerable extent modified by the circumstance I have mentioned, I should like to point out, as possibly helping to the solution of the problem sometimes discussed, whether more pasture will give us more stock, that in the grass districts of England the ten years now in review began with 208 cattle on every 1,000 cultivated acres, and ended with no more than 211 on the same area, a far less relative development than the increase of from 84 to 95 per 1,000 acres in the first corn district, 123 to 133 per 1,000 in the second corn district, or 112 to 122 per 1,000 in the arable counties generally. Taking, as is still better, the ratio of the stock to the constant total area at the beginning and end of the decade, it is clear that while the stock on the arable district has increased 14 per cent., that on the grass land, with all the extension of pasture effected, has been but  $8\frac{3}{4}$  per cent. per 100 acres.

The absolute increase, with the rise up to 1874, and the subsequent drop, is given in the tables which follow. There it may be noticed that there is an addition of 47,000 cattle or 17·2 per cent. to the stock of the first corn district in the ten years, and one of nearly 13 per cent. in the arable district generally where the process of conversion into pasture has been less marked. Everywhere else the increase has been relatively much smaller. In the western counties, Wales, and Ireland, where permanent pasture has more rapidly increased, the growth of stock has been from 6 to  $8\frac{1}{2}$  per



cent. only. It is impossible within the limits of such a paper as this to touch on more than one or two of the suggestive points mooted by any analysis of our valuable yearly figures, but the proportion borne by the cows and breeding stock on our farms to the total head returned, and the large diversities in the ratio of young to old animals, are all matters which will repay those who have the time to make closer investigation.

The distinct check which, after 1874, attended the growth of our cattle stocks in this country, must be held to have been largely due to the recent prevalence of disease, and the dread among breeders of the continued risk of foreign contagion. This cause of alarm is happily now to a great extent removed. The useful statute of 1878 has done much to clear our country of diseases which, though less alarming to the public, were far more injurious to the farmer than rinderpest itself; and the administration of the Act has been equally successful in checking the threatened invasion of meat-destroying diseases from America and elsewhere. If the same care is taken for the future, there seems no reason to doubt that a very large and considerable development might be effected in the quantity of home-bred stock maintained on British farms, while the figures I have quoted tend to show that such an increase of meat production need not depend on a great conversion of arable into pasture land.

*Number of Cattle at Three Periods.*

[000's omitted.]

	1870.				1874.				1879.			
	Cows.	Other Cattle.		Total.	Cows.	Other Cattle.		Total.	Cows.	Other Cattle.		Total.
		2 Years and upwards.	Under 2 Years.			2 Years and upwards.	Under 2 Years.			2 Years and upwards.	Under 2 Years.	
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
I. Corn district	85,	94,	94,	273,	94,	120,	130,	344,	91,	106,	123,	320,
II. „	375,	293,	326,	994,	400,	335,	422,	1,157,	400,	317,	394,	1,111,
Arable district ....	460,	387,	420,	1,267,	494,	455,	552,	1,501,	491,	423,	517,	1,431,
Grass „	1,069,	591,	830,	2,490,	1,120,	651,	1,033,	2,805,	1,114,	610,	974,	2,698,
England .....	1,529,	978,	1,250,	3,757,	1,614,	1,106,	1,585,	4,306,	1,605,	1,033,	1,491,	4,129,
Wales .....	256,	123,	225,	604,	264,	125,	276,	665,	262,	112,	270,	644,
Scotland .....	376,	255,	411,	1,042,	396,	279,	481,	1,155,	389,	260,	435,	1,084,
Great Britain ....	2,162,	1,356,	1,885,	5,403,	2,274,	1,510,	2,342,	6,125,	2,255,	1,405,	2,196,	5,856,
Ireland .....	1,527,	796,	1,474,	3,797,	1,490,	911,	1,719,	4,110,	1,465,	840,	1,762,	4,067,
Isle of Man and Channel Islands }	16,	4,	15,	35,	16,	5,	17,	38,	16,	5,	17,	38,
United Kingdom	3,705,	2,156,	3,374,	9,235,	3,780,	2,426,	4,078,	10,283,	3,736,	2,250,	3,975,	9,961,

*Increase or Decrease of Cattle since 1870.*

	Number. [000's omitted.]				Percentage.			
	Cows.	Other Cattle.		Total.	Cows.	Other Cattle.		Total.
		2 Years and Upwards.	Under 2 Years.			2 Years and Upwards.	Under 2 Years.	
I. Corn district	6,	12,	29,	47,	7.0	12.8	30.8	17.2
II. „	25,	24,	68,	117,	6.7	8.2	20.9	11.8
Arable district ....	31,	36,	97,	164,	6.7	9.3	23.1	12.9
Grass „ ....	45,	19,	144,	208,	4.2	3.2	17.3	8.4
England .....	76,	55,	241,	372,	5.0	5.6	19.3	9.9
Wales .....	6,	— 11,	45,	40,	2.3	8.9	20.0	6.6
Scotland .....	13,	5,	24,	42,	3.5	2.0	5.8	4.0
Great Britain .....	95,	49,	310,	454,	4.4	3.6	16.4	8.4
Ireland .....	— 62,	44,	288,	270,	— 4.2	5.5	19.5	7.1
Isle of Man .....	—	1,	2,	3,	—	25.5	13.3	8.6
United Kingdom	33,	94,	600,	727,	1.0	4.4	18.0	7.9

*Decrease of Cattle since 1874.*

	Number. [000's omitted.]				Percentage.			
	Cows.	Other Cattle.		Total.	Cows.	Other Cattle.		Total.
		2 Years and Upwards.	Under 2 Years.			2 Years and Upwards.	Under 2 Years.	
I. Corn district	3,	14,	7,	24,	3.2	11.7	5.4	7.0
II. „	—	18,	28,	46,	—	5.4	6.6	4.0
Arable district ....	3,	32,	35,	70,	0.6	7.0	6.2	4.6
Grass „ ....	6,	41,	60,	107,	0.5	6.3	5.8	3.8
England .....	9,	73,	95,	177,	0.6	6.6	6.0	4.1
Wales .....	2,	13,	6,	21,	0.8	10.4	2.2	3.2
Scotland .....	7,	19,	45,	71,	1.8	6.8	9.4	6.1
Great Britain .....	19,	105,	146,	270,	0.9	7.0	6.2	4.4
Ireland .....	25,	71,	+ 43,	53,	1.7	7.8	+ 2.5	1.3
Isle of Man, &c.....	—	—	—	—	—	—	—	—
United Kingdom	44,	176,	103,	323,	1.2	7.2	2.5	3.1

*3. Sheep.*

The diminution in the sheep stock of the country is a feature pressed upon our attention in the annual returns. The tables appended to this section make some endeavour to discover if there is any marked local peculiarities in this reduction.

It must be specially noted that while compared with 1870 we have in the aggregate but little diminution of our flocks, the falling off when 1879 is contrasted with 1874 is much more serious. The aggregate flocks of the United Kingdom rose from 32,800,000 in 1870, to 34,800,000 in 1874, and dropped again to 32,200,000 last year. Over the more recent period, and for the whole country, the reduction marked is  $7\frac{1}{2}$  per cent. Ireland shows relatively a greater falling off than any other section of the United Kingdom, unless we take the drop, of course on a very much smaller scale, in the flocks of the Isle of Man into account. So far as England herself is concerned, it is distinctly the corn and arable districts where the greatest loss of sheep is reported. This is quite what ought to be expected from the effect of the wet seasons on the corn-growing clays; and it is here that in the ten years, 1870-79, a material diminution is apparent. The Welsh sheep-farmers account for 6 per cent. larger flocks than at the beginning of the decade, and the grass district of England has about one-tenth per cent. more sheep than in 1870, while the arable district has 5 per cent. less. The figures as between 1874 and 1879 do not retain the same marked difference in this respect, though the falling off in this case is about 8 per cent. on the arable to  $6\frac{1}{2}$  per cent. on the grass.

It is worthy of remark, however, that we have practically no larger flocks now in those very districts of England where the permanent pasture is greater by 1,100,000 acres than it was ten years ago.

*Number of Sheep at Three Periods.*

[000's omitted.]

	1870.			1874.			1879.		
	One Year and Upwards.	Under 1 Year.	Total.	One Year and Upwards.	Under 1 Year.	Total.	One Year and Upwards.	Under 1 Year.	Total.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
I. Corn district ....	1,320,	798,	2,118,	1,314,	873,	2,187,	1,210,	790,	2,000,
II. „ ....	4,709,	2,720,	7,429,	4,739,	2,895,	7,634,	4,384,	2,662,	7,046,
Arable district .....	6,029,	3,518,	9,547,	6,053,	3,768,	9,821,	5,594,	3,452,	9,046,
Grass „ .....	5,974,	3,419,	9,393,	6,389,	3,650,	10,039,	5,927,	3,473,	9,400,
England .....	12,003,	6,937,	18,940,	12,442,	7,418,	19,860,	11,521,	6,925,	18,446,
Wales .....	1,892,	815,	2,707,	2,111,	954,	3,065,	2,012,	861,	2,873,
Scotland .....	4,515,	2,235,	6,750,	4,896,	2,493,	7,389,	4,639,	2,199,	6,838,
Great Britain .....	18,410,	9,987,	28,397,	19,449,	10,865,	30,314,	18,172,	9,985,	28,157,
Ireland .....	2,840,	1,494,	4,334,	2,857,	1,581,	4,438,	2,572,	1,446,	4,018,
Isle of Man and } Channel Islands }	34,	21,	55,	51,	36,	87,	36,	27,	63,
United Kingdom ....	21,284,	11,502,	32,787,	22,357,	12,482,	34,838,	20,780,	11,458,	32,238,

*Increase or Decrease of Sheep since 1870.*

	Number. [000's omitted.]			Percentage.		
	One Year and Upwards.	Under 1 Year.	Total.	One Year and Upwards.	Under 1 Year.	Total.
	Inc. or dec.	Inc. or dec.	Inc. or dec.	Per cent.	Per cent.	Per cent.
I. Corn district .....	— 110,	— 8,	— 118,	— 8·3	— 1·0	— 5·6
II. „ .....	— 325,	— 58,	— 383,	— 6·9	— 2·1	— 5·2
Arable district .....	— 435,	— 66,	— 501,	— 7·2	— 1·8	— 5·2
Grass „ .....	— 47,	+ 54,	+ 7,	— 0·8	+ 1·6	+ 0·1
England .....	— 482,	— 12,	— 494,	— 4·0	— 0·2	— 2·6
Wales .....	+ 120,	+ 46,	+ 166,	+ 6·2	+ 5·6	+ 6·1
Scotland .....	+ 124,	— 36,	+ 88,	+ 2·7	— 1·6	+ 1·3
Great Britain .....	— 238,	— 2,	— 240,	— 1·3	—	— 0·8
Ireland .....	— 268,	— 48,	— 316,	— 9·4	— 3·2	— 7·3
Isle of Man and } Channel Islands }	+ 2,	+ 6,	+ 8,	+ 6·0	+ 23·0	+ 14·5
United Kingdom .....	— 504,	— 44,	— 548,	— 2·4	— 0·4	— 1·7

*Decrease of Sheep since 1874.*

	Number. [000's omitted.]			Percentage.		
	One Year and Upwards.	Under 1 Year.	Total.	One Year and Upwards.	Under 1 Year.	Total.
I. Corn district .....	104,	83,	187,	7·9	9·5	8·6
II. „ .....	355,	233,	588,	7·5	8·0	7·7
Arable district .....	459,	316,	775,	7·6	8·4	7·9
Grass „ .....	462,	177,	639,	7·2	4·8	6·5
England .....	921,	493,	1,414,	7·4	6·6	7·1
Wales .....	99,	93,	192,	4·2	9·7	6·3
Scotland .....	257,	294,	551,	5·2	11·8	7·5
Great Britain .....	1,277,	880,	2,157,	6·6	8·1	7·1
Ireland .....	285,	135,	420,	10·0	8·5	9·5
Isle of Man, &c. ....	15,	9,	24,	29·4	25·0	27·6
United Kingdom .....	1,577,	1,024,	2,601,	7·1	8·2	7·5

VII.—*Size of Farms.*

Although not a matter capable of being treated in the same way as the statistics of the growth or diminution of the crops or



stock of our farmers, the question of the size of our agricultural holdings generally is a matter now so much canvassed that I venture to submit some remarks on this topic.

I have found some difficulty in arriving at any approximate statement of the distribution of holdings according to their size, as the returns on this subject vary both in the time and mode of their collection. We may be said to have two distinct sets of data, those furnished in some of the yearly agricultural returns, and those tabulated by the census commissioners in their general report for 1871. The agricultural returns provide information in somewhat different forms and at various periods, so that we have no complete record going down below 50 acres for all classes of holdings for any one year.

The census collection of figures cannot however be resorted to for general purposes. It is not gathered from the whole area of any one of the divisions of the United Kingdom. The tabulation has been made only for seventeen counties believed to be fairly and typically agricultural. These counties were Sussex, Hants, Berks, Essex, Suffolk, Norfolk, Leicester, Rutland, Lincoln, Notts, Derby, Durham, Northumberland, Cumberland, Westmoreland, and the extra metropolitan parts of Kent and Surrey. For these areas it indeed distinguished certain particulars in all cases where the occupiers of land were technically viewed as farmers, and so far as these farmers filled up their returns. The several holdings were arranged in twenty-five groups, from those of under 5 acres to those of over 2,000 acres. As the report of the commissioners acknowledges, however, there were many instances in which the farmers did not give the particulars which by the householder's schedule they were directed to do, and the interpretation also of a "farmer" according to the census classification is very distinctly narrower than the more general designation of "occupier of land." The average size of an English holding according to the Census Commissioners was 152 acres—a figure lately contrasted by our President with the not dissimilar dimensions of American farms; according to the agricultural returns an average holding was little more than one-third as great, or 57 acres. The entire divergence between the two sets of figures, the census and the agricultural returns, is very puzzling to any inquirer into the distribution of our land and the size of our holdings, who happens to overlook these distinctions. I cannot perhaps do better than illustrate here in the case of one or two counties the entirely different results of the two calculations. I take as typical the large and important agricultural county of Lincoln and its small neighbour the county of Rutland. The following table shows the figures for Lincolnshire:—

Census Returns.	Extent of Farms.	Agricultural Returns.
No.		No.
570	Not exceeding 5 acres ....	9,287
2,437	5 to 20 acres .....	5,145
1,993	20 „ 50 „ .....	5,274
1,439	50 „ 100 „ .....	2,181
3,237	100 „ 500 „ .....	3,705
311	Above 500 „ .....	398
106	Acreage not stated .....	—
10,093	Total .....	25,990

Taking another sample in the case of a county where the area and number of farmers is small, the same altogether different reading is obtained. In Rutland thus we have :—

Census Returns.	Extent of Farms.	Agricultural Returns.
No.		No.
10	Not exceeding 5 acres .....	551
61	5 to 20 acres .....	173
107	20 „ 50 „ .....	226
102	50 „ 100 „ .....	139
236	100 „ 500 „ .....	262
10	Over 500 „ .....	11
12	Acreage not stated .....	—
538	Total .....	1,362

Not only therefore does it appear that the census returns altogether omit numerous small occupancies, probably in no case going down to the quarter-acre limit of the agricultural returns, but all through the scale the agricultural returns are much the more exhaustive of the two. Between 20 and 50 acres they account for double the number of holdings, and between 50 and 100 acres for at least a third as many more as appear in the census figures. These differences seem to be greater than can be accounted for simply on the hypothesis that Lincolnshire farmers to the number of 1,445, or Rutland men to the number of 89, declined to make the necessary statements in the census schedule, that very small plots are not considered technically “farms,” that the entire occupation of each man, and not, as in the agricultural returns, the separate holdings he may cultivate, are given, or even by the consideration that land occupied by persons having other professions than farming is disregarded in the census statement. No doubt a very large share of the discrepancy is accounted for by these diversities, but their existence, and the otherwise defective nature of the census tabulation, leads me to revert entirely to the agricultural returns for such

information as may be required for the purpose of this paper respecting the size of agricultural holdings.

I cannot do so, however, without inviting the attention of this Society to the very great desirability of securing at the approaching census some distinct understanding and correlation between the data gathered by the enumerators, and that furnished periodically by the Board of Trade. It is true a committee of our Council has directed attention to the advantage of securing contemporaneously with the census a more than usually exhaustive series of agricultural returns in 1881. As however unusual interest attaches in the minds of many persons at this time to the question of the size of farms, I would throw out the suggestion that either by means of the census machinery, or in connection with the agricultural returns for the same year, a complete statement should be furnished showing the size of all holdings in all parts of the country, and where two or more are cultivated together this also might be stated. That these facts are already furnished for Ireland, where in 1878 there were 579,399 holdings in the hands of 531,422 occupiers, ought I think to make us hesitate to pronounce the task one impossible in Great Britain, while of its value for many purposes there can be little doubt.

#### VIII.—*Number and Acreage of Holdings.*

It is necessary to explain how the figures are obtained which I have attributed to the agricultural returns in the two counties just mentioned, and hereafter in the general approximate classification I propose to attempt. I find that in 1870, the agricultural blue book obtained and tabulated the numbers of each class of holdings in each division and county of Great Britain in the following classes, "not exceeding 5 acres," "from 5 to 20 acres," "from 20 to 50," "from 50 to 100," and "above 100 acres," giving at the same time the percentage of holdings not exceeding 20 acres, between 20 and 100 acres, and above 100 acres.

The results obtained expressed in thousands, were these:—

##### *Number of Holdings.*

[000's omitted.]

	England.	Wales.	Scotland.	Great Britain.
Not exceeding 5 acres.....	102,	11,	23,	136,
From 5 to 20 „ .....	111,	17,	22,	150,
„ 20 „ 50 „ .....	63,	13,	11,	87,
„ 50 „ 100 „ .....	46,	9,	9,	64,
Above 100 acres .....	71,	7,	14,	92,
Total .....	393,	57,	79,	529,

While the percentages given showed that 54 per cent. of the holdings in England, 49 per cent. of those in Wales, 57 per cent. of those in Scotland, and 54 per cent. for Great Britain as a whole did not exceed 20 acres. Holdings between 20 and 100 acres formed in England 28, in Wales 38, in Scotland 25, and in Great Britain 28 per cent. of the entire number recorded, leaving the larger farms above the 100 acre limit to represent in England, Scotland, and Great Britain, 18 per cent. and in Wales 13 per cent. of the returned total.

Acreage was not, however, returned in this tabulation, though appended to it appears an estimate of the probable acreage in each class of holdings. This estimate was subsequently, on fuller data being obtained, found to be inaccurate. I have not therefore ventured to rely on it, or indeed on these earliest official statements, for the tables I venture to construct.

In the following year, 1871, we had given us a return of the number and actual acreage of all holdings below 20 acres, with additional information detailing the character of the cultivation of these holdings, their pasture and arable land, and the live stock kept upon them. A further step was taken in 1872, when we had presented to view the above, and even more detailed particulars for one class of the section of our smaller holdings, those whose sizes ran from one-quarter of an acre to an acre, and from that limit to 5 acres inclusive. This process revealed a larger number of these small areas than had been up to that time suspected. A number of allotments were also embraced in these totals, amounting indeed to 49,000 holdings, or about two-thirds of the entire number of holdings of from a quarter to 1 acre in extent. It was intimated, however, that this was much below the real number of allotments actually existing; and accordingly, in 1873, a special return of allotments was furnished embracing both these and others. It then appeared that 242,000 garden allotments, without reckoning the numerous gardens surrounding the houses of labourers or artisans, existed in England; while Wales and Scotland between them made up 3,800 more of such small holdings.

Leaving for the present the interesting but separate subject of the geographical distribution of these allotments, we have last of all available the valuable analysis of the size of agricultural holdings supplied in the returns for 1875. There we have for six groups of occupations—those not exceeding 50 acres, those from 50 to 100, from 100 to 300, from 300 to 500, and from 500 to 1,000, and above 1,000 acres—the statistics, county by county, of their number, acreage, and live stock at the above date.

Making use of the most recent of the above statements, I have endeavoured to tabulate in one form the information thus



obtainable. Owing to discrepancies which I have been unable to reconcile in particular counties, this table cannot be completed in detail, but assuming that, roughly speaking, any irregularity in the structure of the several returns, and in the varying numbers accounted for in different years, will not very greatly affect the totals, I venture to submit the following approximate classification of the number and acreage of several distinctive classes of agricultural holdings in the great divisions of the United Kingdom:—

*Number of Holdings.*

	England.	Wales.	Scotland.	Ireland.
Not exceeding 1 acre .....	67,422	1,103	1,319	51,221
1 to 5 acres .....	93,148	10,041	21,091	66,359
5 „ 20 „ .....	50,895	15,390	21,511	} 373,782
20 „ 50 „ .....	82,004	13,627	12,390	
Total 50 acres and under	293,469	40,161	56,311	491,362
50 to 100 acres .....	44,842	9,656	9,878	56,138
100 „ 500 „ .....	69,695	7,749	13,790	30,347
Over 500 „ .....	4,334	94	817	1,552
Total .....	412,340	57,660	80,796	579,399

The total number of returns is that given in 1878 for Ireland, and in 1875 for the other columns. Assuming, however, that the percentages now would not materially differ from those resulting from the above table, it is interesting to note what ratio the small holdings bear to the total number of those accounted for.

*Percentage of Holdings.*

	England.	Wales.	Scotland.	Ireland.
Not exceeding 1 acre .....	16	2	2	9
1 to 5 acres .....	23	17	26	11
5 „ 20 „ .....	12	27	27	} 65
20 „ 50 „ .....	20	24	15	
Total 50 acres and under ....	71	70	70	85
50 to 100 acres .....	11	17	12	10
100 „ 500 „ .....	17	13	17	5
Over 500 „ .....	1	—	1	—
	100	100	100	100

The Irish figures from 5 to 50 acres are grouped in one class, the mode of division not allowing of the same classes to be stated as for England. By far the larger portion of this 65 per cent. are, however, under 30 acres; and perhaps one of the most striking

features of such a table is that in the very smallest class of occupations England has the largest share.

The relative acreage of the several classes of holdings is perhaps quite as interesting as the numbers of each class, and in the same summary form it may approximately be given thus, omitting, as I have here to do, the case of Ireland:—

*Acreage of Holdings.*

[000's omitted.]

	England.	Wales.	Scotland.	Great Britain.
Not exceeding 5 acres .....	288,	31,	76,	395,
5 to 20 acres .....	1,120,	172,	210,	1,502,
20 „ 50 „ .....	2,142,	429,	380,	2,951,
Total 50 acres and under ....	3,550,	632,	666,	4,848,
50 to 100 acres .....	3,259,	699,	698,	4,656,
100 „ 500 „ .....	14,245,	1,299,	2,710,	18,254,
Over 500 „ .....	3,086,	67,	537,	3,690,
	24,140,	2,697,	4,611,	31,448,

In this table, as in the last, I rely for the data in the last four scales on the official totals of 1875, and on the facts to be gathered from earlier returns for the smaller plots, the cultivated acreage for 1875 being that distributed. The percentages of this distribution show:—

*Percentage of Acreage.*

	England.	Wales.	Scotland.	Great Britain.
Not exceeding 5 acres .....	1	1	2	1
5 to 20 acres .....	5	6	4	5
20 „ 50 „ .....	9	16	8	9
Total 50 acres and under ....	15	23	14	15
50 to 100 acres .....	14	26	15	15
100 „ 500 „ .....	59	48	59	58
Over 500 „ .....	12	3	12	12
	100	100	100	100

I have not been able to work out similar statements for the arable and grass districts of England respectively, on account of the uncertainty of some of the figures in the smaller classes of holdings. In the larger classes this is possible, and on the same data it would appear that the number of holdings is thus apportioned:—

	50 Acres and under.	50 to 100 Acres.	100 to 500 Acres.	Over 500 Acres.	Total.
I. Corn district .....	31,278	5,048	9,207	899	46,432
II. „ .....	81,679	11,106	22,561	2,202	117,548
Arable district .....	112,957	16,154	31,768	3,101	163,980
Grass „ .....	180,512	28,688	37,927	1,233	248,360
England „ .....	293,469	44,842	69,695	4,334	412,340

The percentages of the number of these holdings respectively were thus :—

	50 Acres and under.	50 to 100 Acres.	100 to 500 Acres.	Over 500 Acres.	Total.
I. Corn district .....	67	11	20	2	100
II. „ .....	70	9	19	2	100
Arable district .....	69	10	19	2	100
Grass „ .....	73	12	15	—	100
England .....	71	11	17	1	100

The acreage in 1875 of the various classes of holdings, which it must be remembered slightly differs from the acreage of 1879, was also thus distributed :—

	50 Acres and under.	50 to 100 Acres.	100 to 500 Acres.	Above 500 Acres.	Total.
I. Corn district .....	352,	363,	1,986,	648,	3,349,
II. „ .....	919,	810,	4,952,	1,572,	8,253,
Arable district .....	1,271,	1,173,	6,938,	2,220,	11,602,
Grass „ .....	2,279,	2,086,	7,307,	866,	12,538,
England .....	3,550,	3,259,	14,245,	3,086,	24,140,

While, if we wish to see the relative proportions of the separate classes to the total of each area, the percentages of acreage appear to be these :—

	50 Acres and under.	50 to 100 Acres.	100 to 500 Acres.	Above 500 Acres.	Total.
I. Corn district .....	11	11	59	19	100
II. „ .....	11	10	60	19	100
Arable district .....	11	10	60	19	100
Grass „ .....	18	17	58	7	100
England .....	15	14	59	12	100

From such statements as these it is at least apparent that the small holdings in the corn districts form a relatively smaller ratio of the whole, and occupy a still more distinctly smaller relative area than those of the grass region generally, nearly one-fifth of the surface of the western grass counties being broken up into holdings of 50 acres or less. Of the larger holdings, 21 per cent. altogether in the arable district exceed 100 acres, and occupy 79 per cent. of its area, while in the grass district only 15 per cent. of the holdings attain these dimensions, the area so appropriated being 65 per cent. of the total surface.

The average size of an English holding is given in 1875 as 57 acres. But in the corn counties of the first district it is as high as 72 acres; in the second corn district, 70 acres; while in the grass district generally it is little over 50 acres. The counties vary, however, somewhat irregularly in their average size of holding. With the exception of Middlesex and Cornwall, where the average holding is 38 acres, the counties showing a less average acreage than 40 acres lie in a single group, viz., Lancaster, Cheshire, Derby, and the West Riding of Yorkshire. On the other hand, Northumberland at one extremity of the kingdom has an average of 122 acres per holding, while Wilts, in the south, comes next with 95 acres. Oxford, Suffolk, and Berkshire stand next in order, and all exceeding 80 acres. Lincolnshire, where many large farms are met with, has its average reduced to the ordinary level by the small cultivators of the soil for which the isle of Axholme, and one or two other special districts, is remarkable.

#### IX.—*Changes in Rent.*

Although there are many topics I must omit from a hasty survey of the agricultural situation, I may claim space for an attempt to discover, from such official sources as may be got at, whether any, and what, changes occurred in the rent of land during the period now under review, and if different localities were differently affected in this particular. I believe those who have looked closely into this subject will agree with me that the gross assessment to Schedule B of the income tax is perhaps the nearest approach we have to a record of agricultural rent, and although the data which would discriminate between one district of the country and another is not yet available for the precise years 1870-79, it so happens that by the aid of two separate returns, and with the adjustment of a few very simple calculations, it is possible to construct a schedule of rental, county by county, for each of the official years 1868-69 and 1877-78—the beginning and end of the nearest decade to that I am now dealing with. For the counties of the *first* and *second* corn districts I have given this schedule, with the



percentage of increase in the appendix. For Ireland I have had to take the figures from the "Land" portion of Schedule A, since in that country at the earlier year a practice wholly different from the present prevailed in the case of Schedule B—net figures only and not gross being recorded—so that to the unwary investigator of the official tables, it would seem as if the rent of Irish farms sprang in one year from 2,897,000*l.* to 9,235,000*l.*, a change in the mode of statement only which is not always borne in mind when the series of totals of Schedule B are looked at: while the wide range between the gross and the net figures tells its tale of the smallness of Irish farms.

The following table approximately shows the changes which have taken place:—

*Rent of Land.*

[000's omitted.]

	1878.	1869.	Increase.	Increase.
	£	£	£	Per cent.
I. Corn district .....	6,830,	6,387,	443,	6·9
II. „ „ .....	17,069,	15,791,	1,278,	8·1
Arable district .....	23,899,	22,178,	1,721,	7·8
Grass „ .....	24,492,	22,732,	1,760,	7·8
England .....	48,391,	44,910,	3,481,	7·8
Wales „ .....	3,175,	2,810,	365,	13·0
Scotland .....	7,670,	7,217,	453,	6·3
Great Britain .....	59,236,	54,937,	4,299,	7·8
Ireland „ .....	9,938,	9,202,	736,	8·0
	69,174,	64,139,	5,035,	7·9

The curious similarity in the totals of the apparent rent of the arable and grass divisions of England will be noted here, but contrasted with the larger area of the grass region indicates the greater value of the corn land district. In no division it appears has the rent of land increased except in Wales by as much as 1 per cent. per annum, and the percentage of growth in each district with this exception is very nearly uniform. In Scotland, where Mr. Caird lately noticed the largest relative increase over a longer period of successive years, the latest ten years' growth is less than elsewhere. In the five counties of the *first corn district* the rate of development is the lowest of the sections of England. Although in the *second corn district* the average advance is larger, there are individual counties, such as Notts, where the increase is scarce 2 per cent., Rutland, where it is but 3 per cent., and Northampton, where it does not reach 4 per cent. The growth of rent in

the second corn district is of course affected by abnormal advances in suburban areas such as the  $12\frac{1}{2}$  per cent. rise in Middlesex, while the fact that rent, so far as indicated by Schedule B, in the four southern counties of Hants, Sussex, Surrey, and Kent, has risen from 11 to  $12\frac{1}{2}$  per cent. in this period deserves attention. Some considerable portion of this rise, as indeed of all apparent increases in the income tax returns, is due rather to closer assessment than to really enhanced values, and contrasted with any other property, the rise in rent has been exceedingly small on the whole. What the figures of a later return would show in these days of general reductions may be easily conjectured. There can be little question that at least the ten years' advance and probably much more has by this time been blotted out.

#### X.—*Summary.*

The length to which the very wide subject I have treated has grown permits but the briefest recapitulation of the conclusions arrived at by a ten years' survey of the statistics of British agriculture.

I have been precluded from entering on many incidental questions on which I at one time hoped to be able to touch. The question of the yearly produce of our farms in corn and meat, in wool and dairy produce, and the vast changes in the quantities and values obtained in recent years, I must perforce omit; the distribution of the population employed in agriculture may perhaps fittingly be deferred till we have another census, and one perhaps more exhaustively correct in this particular than I fear was the last. It would have been instructive to have been able to have compared with the figures as to the distribution of farm crops some estimate of the yields of the several cereals in the belts into which England has been divided; but to have attempted this would have protracted my tables beyond all reasonable limits. I may be allowed, nevertheless, in passing, to notice here that according to certain data furnished ten years ago, by practical farmers to the columns of the "Chamber of Agriculture Journal," the diversity in results would prove quite as striking as in the allocation of the crops themselves. I might have shown that while the average wheat crop in such counties as Cambridge or Essex within my *first corn district*, stands as high as 33 bushels to the acre, in the *second corn district*, as in Berks and Rutland, little over 31 bushels could be looked for, while in the western counties of the *grass district*, such as Devon, no more than  $21\frac{1}{2}$  bushels may be looked on as a crop. Similarly barley might have been shown to vary from over 39 bushels in Lincolnshire in the east, to 31 bushels in Here-

ford in the west, and oats from the six or seven quarters of the eastern fens to barely four in the thinner soil of Devon.

The time at my disposal also forbids the extension of my paper in one direction originally contemplated, by which I had hoped to increase its interest, by including the opinions of practical residents in the several divisions of the country selected for comparison on the local explanation of the changes officially noted.

Glancing, however, at what has been attempted, rather than at what has been omitted, I have endeavoured to suggest a different classification of areas for the purposes of noting results and changes than has been usually employed.

I have tried to indicate the varied share of pasture and arable land now and ten years ago in different sections of the United Kingdom, and the localities where the chief alterations have been brought about.

An addition of 1,260,000 acres to the cultivated area, meaning by that term all crop land, fallow and permanent grass, has been noted, and the practical acquisition of an equivalent area in grass alone has been pointed out, while besides this the throwing of one-half million acres of arable land in England, and another half million acres of arable land in Ireland into pasture has been made apparent.

The several changes involving the growing of 717,000 acres less of wheat, 310,000 acres more of barley, and 473,000 acres less of oats—the last alteration occurring chiefly in Ireland—have been indicated.

The material and satisfactory increase in the number of our horses, the very varied density of the cattle stocking of the country, and the greater relative increase in the cattle of the arable than of the grass counties, has been shown, as well as the nature of the fluctuations and the recent drop in the numbers of our flocks.

Lastly, I have collected, from the various records of the ten years before us, such data as I thought might help future discussions on the probable size of agricultural holdings in different parts of the United Kingdom, and have suggested that on the occasion of the coming census we ought to obtain more thorough and accurate data, at least under this particular head. My imperfect notes of the salient agricultural changes of the decade have been closed with an inquiry into the approximate movement of agricultural rents in different parts of the country. This investigation revealed a distinctly smaller growth of rent than formerly, although from the data at my command the calculation stops short in 1878, so that it could not take account of the great depreciation that has followed the long series of agricultural disasters, which culminated in 1879, in a time of unprecedented loss to British landowners and farmers.

## APPENDIX.

TABLE I.—*England.*

Counties.	Percentage of Entire Area Returned as Cultivated in		
	1870.	1879.	Increased Percentage of Total Area.
Leicester .....	89'7	92'5	2'8
Cambridge .....	89'9	92'3	2'4
Rutland .....	86'7	91'4	4'7
Huntingdon .....	87'6	91'3	3'7
Oxford .....	86'7	88'9	2'2
Northampton .....	86'4	88'8	2'4
Bedford .....	86'4	88'3	1'9
Wilts .....	84'1	87'6	3'5
Herts .....	85'1	86'7	1'6
Bucks .....	85'3	86'6	1'3
Warwick .....	83'4	86'1	2'7
Nottingham .....	83'9	85'3	1'4
Worcester .....	78'8	84'2	5'4
Lincoln .....	81'7	84'1	2'4
Shropshire .....	79'4	83'8	4'4
Berks .....	81'7	83'6	1'9
York, E. R. ....	80'3	83'6	3'3
Hereford .....	79'5	82'9	3'4
Stafford .....	78'4	81'9	3'5
Suffolk .....	78'1	81'8	3'7
Gloucester .....	80'1	81'0	0'9
Somerset .....	75'5	81'0	5'5
Norfolk .....	77'3	79'7	2'4
Essex .....	75'3	78'6	3'3
Derby .....	74'0	77'6	3'6
Dorset .....	72'4	77'1	4'7
Chester .....	71'9	75'8	3'9
Kent .....	71'7	73'6	1'9
Sussex .....	68'2	71'3	3'9
York, W.R. ....	66'5	68'9	2'4
Devon .....	61'3	68'5	7'2
Hants .....	66'2	68'5	2'3
Middlesex .....	61'1	65'2	4'1
Monmouth .....	60'2	64'7	4'5
Lancaster .....	60'0	64'3	4'3
Durham .....	62'3	64'0	1'7
Cornwall .....	56'6	62'9	6'3
Surrey .....	59'1	62'0	2'9
York, N.R. ....	58'8	61'7	2'9
Cumberland .....	54'1	58'9	4'8
Northumberland .....	51'8	54'1	2'3
Westmoreland .....	45'2	49'0	3'8



TABLE II.—*Changes in Acreage of Corn Crops in First Corn District.*

[000's omitted.]

Counties.	Wheat.				Barley.			
	1870.	1879.	In-crease.	De-crease.	1870.	1879.	In-crease.	De-crease.
	Acres.	Acres.		Acres.	Acres.	Acres.	Acres.	
Cambridge .....	130,	118,	—	12,	57,	72,	15,	—
Essex .....	184,	162,	—	22,	106,	131,	25,	—
Hunts .....	46,	43,	—	3,	22,	27,	5,	—
Norfolk .....	194,	179,	—	15,	194,	209,	15,	—
Suffolk .....	147,	135,	—	12,	140,	163,	23,	—
Total .....	701,	637,	—	64,	519,	602,	83,	—

Counties.	Oats.				All Corn Crops.*			
	1870.	1879.	In-crease.	De-crease.	1870.	1879.	In-crease.	De-crease.
	Acres.	Acres.		Acres.	Acres.	Acres.	Acres.	Acres.
Cambridge .....	38,	32,	—	6,	262,	254,	—	8,
Essex .....	45,	35,	—	10,	410,	396,	—	14,
Hunts .....	12,	10,	—	2,	100,	97,	—	3,
Norfolk .....	34,	28,	—	6,	457,	447,	—	10,
Suffolk .....	17,	15,	—	2,	377,	383,	6,	—
Total .....	146,	120,	—	26,	1,606,	1,577,	6,	35,
							Net 29,	

\* Including beans, peas, &amp;c.

TABLE III.—*Changes in Acreage of Corn Crops in Second Corn District.*  
[000's omitted.]

Counties.	Wheat.				Barley.			
	1870.	1879.	In-crease.	De-crease.	1870.	1879.	In-crease.	De-crease.
York, E.R. ....	119,	89,	—	30,	56,	84,	28,	—
Lincoln .....	310,	247,	—	63,	149,	219,	70,	—
Notts .....	73,	60,	—	13,	50,	55,	5,	—
Rutland .....	10,	9,	—	1,	11,	12,	1,	—
Northampton .....	79,	68,	—	11,	55,	64,	9,	—
Bedford .....	53,	47,	—	6,	31,	36,	5,	—
Herts .....	61,	59,	—	2,	47,	49,	2,	—
Bucks .....	57,	51,	—	6,	31,	32,	1,	—
Oxford .....	62,	55,	—	7,	54,	59,	5,	—
Berks .....	61,	55,	—	6,	40,	44,	4,	—
Wilts .....	98,	87,	—	11,	68,	72,	4,	—
Hants .....	111,	100,	—	11,	65,	66,	1,	—
Sussex .....	100,	89,	—	11,	25,	24,	—	1,
Surrey .....	43,	38,	—	5,	19,	19,	—	—
Kent .....	110,	89,	—	21,	44,	55,	11,	—
Middlesex .....	9,	7,	—	2,	2,	3,	1,	—
Total .....	1,356,	1,150,	—	206,	747,	893,	146,	1,

Counties.	Oats.				All Corn Crops.*			
	1870.	1879.	In-crease.	De-crease.	1870.	1879.	In-crease.	De-crease.
York, E.R. ....	75,	79,	4,	—	279,	274,	—	5,
Lincoln .....	106,	94,	—	12,	617,	620,	3,	—
Notts .....	21,	22,	1,	—	166,	153,	—	13,
Rutland .....	4,	3,	—	1,	26,	26,	—	—
Northampton .....	20,	18,	—	2,	183,	174,	—	9,
Bedford .....	10,	9,	—	1,	120,	114,	—	6,
Herts .....	26,	26,	—	—	151,	146,	—	5,
Bucks .....	24,	26,	2,	—	137,	129,	—	8,
Oxford .....	24,	24,	—	—	164,	160,	—	4,
Berks .....	27,	26,	—	1,	149,	145,	—	4,
Wilts .....	33,	35,	2,	—	222,	212,	—	10,
Hants .....	65,	65,	—	—	260,	248,	—	12,
Sussex .....	64,	64,	—	—	213,	198,	—	15,
Surrey .....	24,	25,	1,	—	98,	92,	—	6,
Kent .....	54,	48,	—	6,	252,	231,	—	21,
Middlesex .....	5,	5,	—	—	19,	18,	—	1,
Total .....	582,	569,	10,	23,	3,056,	2,944,	3,	116,

\* Including beans, peas, &amp;c.

TABLE IV.—*Changes in Acreage of Corn Crops in Grass District.*

[000's omitted.]

	Wheat.				Barley.			
	1870.	1879.	In-crease.	De-crease.	1870.	1879.	In-crease.	De-crease.
Northumberland ....	39,	23,	—	16,	37,	43,	6,	—
Cumberland .....	25,	16,	—	9,	11,	8,	—	3,
Durham .....	42,	31,	—	11,	16,	21,	5,	—
Westmoreland .....	2,	1,	—	1,	4,	3,	—	1,
York, N.R. ....	76,	52,	—	24,	64,	84,	20,	—
York, W.R. ....	101,	76,	—	25,	71,	83,	12,	—
Lancaster .....	37,	28,	—	9,	10,	12,	2,	—
Cheshire .....	34,	25,	—	9,	5,	4,	—	1,
Derby .....	32,	23,	—	9,	16,	15,	—	1,
Leicester .....	48,	34,	—	14,	31,	35,	4,	—
Stafford .....	54,	44,	—	10,	33,	30,	—	3,
Shropshire .....	84,	67,	—	17,	55,	59,	4,	—
Hereford .....	60,	49,	—	11,	24,	26,	2,	—
Worcester .....	67,	55,	—	12,	20,	23,	3,	—
Warwick .....	78,	60,	—	18,	29,	30,	1,	—
Gloucester .....	95,	81,	—	14,	44,	46,	2,	—
Monmouth .....	21,	16,	—	5,	12,	11,	—	1,
Somerset .....	73,	61,	—	12,	37,	37,	—	—
Dorset .....	47,	40,	—	7,	42,	42,	—	—
Devon .....	123,	107,	—	16,	84,	75,	—	9,
Cornwall .....	53,	43,	—	10,	53,	54,	1,	—
	1,191,	932,	—	259,	698,	741,	62,	19,

	Oats.				All Corn Crops.			
	1870.	1879.	In-crease.	De-crease.	1870.	1879.	In-crease.	De-crease.
Northumberland ....	68,	57,	—	11,	154,	129,	—	25,
Cumberland .....	77,	69,	—	8,	115,	94,	—	21,
Durham .....	40,	34,	—	6,	105,	90,	—	15,
Westmoreland .....	17,	16,	—	1,	23,	19,	—	4,
York, N.R. ....	68,	66,	—	2,	226,	216,	—	10,
York, W.R. ....	56,	57,	1,	—	250,	231,	—	19,
Lancaster .....	53,	53,	—	—	106,	98,	—	8,
Cheshire .....	48,	45,	—	3,	93,	79,	—	14,
Derby .....	29,	25,	—	4,	81,	65,	—	16,
Leicester .....	21,	21,	—	—	117,	98,	—	19,
Stafford .....	31,	29,	—	2,	127,	109,	—	18,
Shropshire .....	26,	25,	—	1,	178,	160,	—	18,
Hereford .....	12,	14,	2,	—	110,	103,	—	7,
Worcester .....	7,	9,	2,	—	124,	112,	—	12,
Warwick .....	15,	18,	3,	—	156,	133,	—	23,
Gloucester .....	16,	19,	3,	—	184,	166,	—	18,
Monmouth .....	8,	8,	—	—	44,	37,	—	7,
Somerset .....	23,	21,	—	2,	153,	135,	—	18,
Dorset .....	21,	20,	—	1,	117,	109,	—	8,
Devon .....	84,	90,	6,	—	295,	275,	—	20,
Cornwall .....	43,	40,	—	3,	150,	138,	—	12,
	763,	736,	17,	44,	2,908,	2,596,	—	312,

TABLE V.—*Rent of Land, 1869-78.*

## 1. CORN DISTRICT.

[000's omitted.]

	Schedule B (1878).	Schedule B (1869).	Increase.	Increase.
	£	£	£	Per cent.
Hunts .....	390,	361,	29,	8.0
Cambridge .....	1,073,	1,010,	63,	6.2
Norfolk .....	2,099,	1,983,	116,	5.8
Suffolk .....	1,495,	1,404,	91,	6.1
Essex .....	1,773,	1,629,	144,	8.8
Total .....	6,830,	6,387,	443	6.9

## 2. CORN DISTRICT.

	Schedule B (1878).	Schedule B (1869).	Increase.	Increase.
	£	£	£	Per cent.
York, E.R. ....	1,469,	1,374,	95,	6.9
Lincoln .....	3,159,	2,907,	252,	8.7
Notts .....	916,	897,	19,	2.1
Rutland .....	167,	162,	5,	3.0
Northampton .....	1,178,	1,136,	42,	3.7
Bedford .....	510,	485,	25,	5.2
Herts .....	648,	614,	34,	5.5
Bucks .....	829,	750,	79,	10.5
Oxford .....	803,	752,	51,	6.8
Berks .....	720,	681,	39,	5.7
Wilts .....	1,281,	1,210,	71,	5.9
Hants .....	1,174,	1,052,	122,	11.6
Sussex .....	1,156,	1,028,	128,	12.5
Surrey .....	648,	583,	65,	11.1
Kent .....	1,956,	1,755,	201,	11.5
Middlesex .....	455,	405,	50,	12.6
Total .....	17,069,	15,791,	1,278,	8.1



*On the HOME PRODUCE, IMPORTS, CONSUMPTION, and PRICE of WHEAT, over TWENTY-EIGHT (or TWENTY-SEVEN) HARVEST-YEARS, 1852-53 to 1879-80 inclusive. By J. B. LAWES, LL.D., F.R.S., F.C.S., and J. H. GILBERT, PH.D., F.R.S., F.C.S.*

[Read before the Statistical Society, 11th May, 1880.]

IN a paper "On the Home Produce, Imports, and Consumption of "Wheat," published in the "Journal of the Royal Agricultural "Society of England," in 1868, we gave records and estimates on the subject for sixteen harvest-years 1852-3 to 1867-8 inclusive; and in 1863, and each year since, an estimate for the then current year has been published in the "Times" and elsewhere, soon after harvest. We propose, on the present occasion, to pass in review the estimates formerly given, and to complete the record from the commencement up to the present time; namely, for twenty-eight (or twenty-seven) years, 1852-3 to 1879-80 inclusive. In our former paper we gave the records and estimates for each division of the United Kingdom separately, and for the whole collectively; but it is proposed now to confine the illustrations to the United Kingdom as a whole.

The main elements of the question are the following:—

1. The area under wheat.
2. The average yield of wheat per acre.
3. The aggregate home produce, and the amount of it available for consumption.
4. The imports.
5. The population.
6. The average consumption of wheat per head of the population, per annum.

The data then at command, and the results arrived at, are fully considered in the paper above mentioned, and we must refer to it for detailed information on most of the points in question, but the main facts may be briefly summarised here.

*The Area under Wheat.*—For the period from 1852 to 1865 inclusive, we had to rely on estimates alone in fixing the area under the crop in England and Wales. For Scotland, we had returns collected by the Highland Society for the years 1854-57; but for the two years prior to 1854, and for the years subsequent to 1857, down to 1865 inclusive, we had to rely on estimates merely. For Ireland, returns were available for each of the sixteen years included in the

inquiry. Thanks to the exertions of Mr. Caird, we have for 1866, and for each year since, an official record of the area under the crop, in each division of the United Kingdom, and in the whole collectively, in the "Agricultural Returns" now annually published about the time of harvest. One element of uncertainty in any estimates of the home produce of wheat is, therefore, fortunately removed.

*The Average Yield of Wheat per Acre.*—The only returns or official estimates at command relating to this subject, were for Scotland for four years, and for Ireland for each year within the period of our inquiry; whilst, for England and Wales, comprising from 85 to 90 per cent. of the total area under the crop, there was, and there is, no official information whatever. For this large proportion of the United Kingdom it was, therefore, after very full consideration of the data, and of the results to which they led, decided to adopt the average produce per acre each year, on certain selected, and very differently manured plots, in the permanent experimental wheat field at Rothamsted, as the basis of estimates of the average produce per acre from year to year; and, each year since, the same data have been relied upon in forming an estimate of the average produce over the United Kingdom as a whole. But, having regard to the character of the soil at Rothamsted, to the characters of the individual seasons, and to the consideration whether the season was more favourable for heavy or for light land, and so on, the estimate actually adopted for the country at large has, in some seasons, and more especially in bad seasons, differed somewhat from the actual average indicated on the selected plots in the experimental field. Lastly, in all cases, the actual number of bushels is reduced by calculation so as to represent bushels of the standard weight of 61 lbs. per bushel.

It is proposed, on the present occasion, briefly to examine into the validity of the data thus taken as a basis for estimating the average yield per acre of the country each year, and also into the trustworthiness of the results arrived at, as tested by subsequent knowledge, and by their accordance, or otherwise, with the conclusions arrived at in regard to other elements of the question.

*The Aggregate Home Produce, and the Amount of it Available for Consumption.*—It will be obvious that, if we know the area under the crop, and have a trustworthy estimate of the average yield per acre, the aggregate home produce is ascertained by a very simple calculation. In determining the amount of the total produce available for consumption, allowance has to be made for the amount annually returned to the land as seed. For reasons formerly given, we have assumed  $2\frac{1}{4}$  bushels per acre to be so returned to the land; and we do not propose to make any alteration in that estimate.

*The Imports.*—From the commencement of the period to which our inquiry relates, we have, for the United Kingdom collectively, returns, either of the net imports of wheat and wheat flour, or of the imports and exports from which the net imports can be calculated. For the separate divisions of the country the returns have not been so complete. But, as we are confining attention to the United Kingdom as a whole, this is immaterial for our present purpose. In the case of the United Kingdom, the records for the individual weeks or months are available; and from these the net imports have been calculated, not for the calendar years, but for the *harvest-years*, that is, from 1st September of one year, to 31st August of the next.

*The Population.*—As the Registrar-General publishes an estimate of the population at the middle of the calendar year, for every year between one census and another, it is easy to calculate, with sufficient accuracy for our purpose, the average number of consumers over each harvest-year. The middle of the calendar year being the end of June, and the middle of the harvest-year the end of February, the plan adopted has been to add to the number recorded for the preceding mid-summer, two-thirds of the difference between that figure and the number given for the next midsummer, thus bringing the estimate up to the end of February. Of course, this can only be done after the second record is published, and the plan was not available in estimating the population of the current harvest-year soon after harvest each year; but the necessary corrections have now been made. The figures show some irregularity of increase immediately after the census years, and at some other periods, presumably from a new factor being then adopted for the calculation of the annual increase of the population.

*The Average Consumption of Wheat per Head of the Population per Annum.*—Previously to the publication of our former paper on this subject, a higher figure had been generally assumed than we were then led to adopt. For England and Wales, we founded an estimate of the average consumption per head of the population, on the calculation of eighty-six different dietaries, arranged in fifteen divisions, according to sex, age, activity of mode of life, and other circumstances; and the result so obtained was compared with that arrived at on the basis of the population, and of the amounts of the available home produce, and of the net imports of wheat, each year. For Scotland, and for Ireland, it was only possible to found an estimate on the basis of population, and of the amounts of the home and foreign supplies. On these bases we estimated the average consumption of wheat, in the United Kingdom collectively, to be  $5\frac{1}{2}$  bushels per head of the population per annum, during the later years to which our inquiry related; and we have adopted that

figure from that date up to the present time. This estimate, whether correct or not, has, from that time, been very generally adopted by other writers on the subject also. Its correctness, and its continued applicability, we propose to consider on the present occasion.

Thus, with regard to the area under the crop, the imports, and the population, we adopt, without modification, the same data or estimates as previously; but the basis of the estimates, and the results arrived at, in regard to the average produce of wheat per acre over the United Kingdom each year, and the estimates of the consumption per head of the population, we propose to submit to examination, and to correction or otherwise, as the case may be.

As already said, the estimate of the average yield of wheat per acre over the United Kingdom is, each year, founded on the average produce obtained on certain selected plots in the field at Rothamsted which has now grown the crop for thirty-six years in succession—without manure, with farmyard manure, and with various artificial manures. There has been no change in the treatment of the unmanured plot, or of the dunged plot, since the commencement of the experiments in 1843-4. There were, however, some changes in the manures applied to the various artificially manured plots during the first eight years from 1844 to 1851 inclusive. But for the period of twenty-eight years, from 1852 up to the present time, two of the selected artificially manured plots have respectively received exactly the same manure each year, and the third has done so for twenty-five years, as described below. The selected plots were:—

Plot 3. Unmanured every year, experiment commencing 1843-4.

Plot 2. Fourteen tons farmyard manure every year, commencing 1843-4.

Plot 7. Mixed mineral manure, and 400 lbs. ammonia-salts, each year, twenty-eight years, 1851-2, and since.

Plot 8. Mixed mineral manure, and 600 lbs. ammonia-salts, each year, twenty-eight years, 1851-2, and since.

Plot 9. Mixed mineral manure, and 550 lbs. nitrate of soda, each year, twenty-five years, 1854-5, and since.

In forming the estimate of the average produce per acre of the country at large, the plan adopted has been to take the mean produce of the unmanured plot, of the farmyard manure plot, and of the three artificially manured plots reckoned as one, and to reduce the result so obtained to bushels of the standard weight of 61 lbs. per bushel. As will be shown further on, experience has proved that this mode of estimate leaves but little to be desired as a means of computation of the average yield of the country over a number of years; but it has not been found to be equally applicable for each



individual year. Careful comparison leads to the conclusion that the so-calculated average produce per acre on the selected plots gives somewhat too high a result for the country at large in seasons of great abundance, and too low a result in unfavourable seasons. Accordingly, as above referred to, in some seasons, instead of the actual average indicated by the experimental plots, a higher or a lower figure has been adopted; and, especially in the case of some of the recent bad seasons, a higher one has been taken.

Independently of any such admitted differences between the so directly calculated, and the actually adopted, estimate for individual years, the question arises—whether the average result indicated by the several selected plots remains as applicable as heretofore? or whether the produce of some is annually declining, or that of others annually increasing, irrespectively of the influence of season, so as to vitiate the continued applicability of such results for the purposes of such an estimate?

*The Unmanured Plot.*—There can be no doubt that the produce on this plot is gradually declining from exhaustion; and, independently of the evidence of diminishing produce, analyses of the soil at different periods show that there is a gradual diminution in the amount of nitrogen in it. Owing, however, to the great fluctuations in the amount of produce from year to year, dependent on season, it is by no means easy to estimate the rate of decline due to exhaustion of the soil, as distinguished from that due to the seasons. In the first place, it is difficult to say what figure should be adopted as the standard produce of the plot, by which to compare the yield from year to year. The whole field was manured with farmyard dung in 1839, and then grew turnips, barley, peas, wheat, and oats, before the commencement of the experiments in 1843-4. The plot then grew eight crops of wheat, to 1850-1, without manure, before the commencement of the period to which our present estimates refer. No doubt the land would suffer more or less exhaustion during those first eight years; but, as serving to counteract the tendency to decline in yield from that cause, it happened that, taken together, those eight seasons were of considerably more than average productiveness; so that perhaps we may assume the average produce of those eight years fairly to represent the standard produce of the unmanured land independently of material exhaustion. That produce was equal to 17 bushels at the standard weight at 61 lbs. per bushel. If now we calculate what should be the produce in each of the subsequent twenty-eight years, on the assumption that it fluctuated from the standard exactly in the proportion of the fluctuation from year to year of the adopted average yield of the country at large, and compare the result so obtained with the actual yield of the plot each

year, we find that the latter shows an average annual deficiency over the twenty-eight years of  $4\frac{3}{8}$  bushels. According to this mode of calculation, therefore, this represents the decline of produce on the unmanured plot, irrespectively of season; and it may be observed that, supposing it to be uniform over the whole period, it would correspond to a rate of diminution, due to exhaustion, of between one-quarter and one-third of a bushel from year to year. It remains to be seen whether, with a return of good seasons, the decline will be as marked; and also whether, in time, a point will be reached at which the produce will remain constant, excepting so far as it is influenced by the fluctuations of the seasons.

*The Farmyard Manure Plot.*—If the unmanured plot is declining in yield and fertility, there can be no doubt that the farmyard manure plot is increasing in fertility. Analysis at different periods shows that the surface soil has become more than twice as rich in nitrogen as the unmanured land. In fact, as we have shown on several occasions, a large amount of the constituents of farmyard manure accumulates within the soil, and they are taken up very slowly by crops. It is indeed remarkable that, notwithstanding this great accumulation within the soil, the crops on the dunged plot never show over-luxuriance. During the last few years, there has even been a considerable decline in produce, due to unfavourable seasons, which have greatly encouraged the growth of weeds, and especially of grass; whilst, owing to the wetness of the seasons, it has been quite impossible effectually to clean the land, and what has been done to that end has not been accomplished without injury to the crop.

If, as in the case of the unmanured plot, we were to adopt the average of the first eight years, from 1844 to 1851, to represent the standard yield of the farmyard manure plot, irrespectively of material accumulation, the figure arrived at would be  $28\frac{1}{2}$  bushels. This is certainly a surprisingly low produce to be obtained by the annual application of 14 tons of farmyard manure per acre, for eight years in succession, and in seasons which, taken together, were of more than average productiveness. But if we adopt this as the standard produce of the plot, then calculate what should be the produce in each of the subsequent twenty-eight years, provided it fluctuated from year to year exactly in the same degree as the average produce of the country at large, and then take the difference between this calculated produce fluctuating by season alone, and that actually obtained each year, we ascertain the increase or decrease due to accumulation by manure. On this mode of calculation we get an average annual increase, due to accumulation, of  $5\frac{1}{4}$  bushels. If, on the other hand, instead of the average produce of the first eight years, we take the average of the

whole thirty-six years of the application of the dung, we get, instead of  $28\frac{1}{8}$  bushels,  $32\frac{1}{8}$  bushels, as the standard with which to compare the annual produce. Adopting this figure, and following the same line of calculation as before to exclude the influence of season, we have an average annual excess, due to accumulation, of only  $1\frac{1}{4}$  bushel. There can be no doubt that were it not for the adverse influence of the recent wet seasons, the estimated excess would be more than  $5\frac{1}{4}$  bushels adopting the first standard, and more than  $1\frac{1}{4}$  bushel adopting the second. Probably the truth lies between these two figures; and, if so, it would appear that, up to the present time at any rate, the gradually diminishing produce on the unmanured plot, due to exhaustion, and the gradually increasing produce on the dunged plot, due to accumulation, approximately balance one another.

*The Artificially Manured Plots.*—Though obviously open to objection, in default of any better alternative, we adopt for these plots the average produce of the twenty-eight (or twenty-five) years, to represent the standard yield irrespectively of exhaustion or accumulation. Doing this, and excluding the influence of season by the same line of calculation as before, there is no evidence of material increase, or of material decrease, on either of the plots receiving ammonia-salts, other than that due to season. The first fourteen of the twenty-eight years included a number of seasons of unusually high productiveness, and the last fourteen a number of unusual deficiency. The calculations show, accordingly, an excess over the assumed standard produce during the first half of the period, and a closely corresponding deficiency over the second half, in both the cases where ammonia-salts were used. Where the nitrate of soda was employed, there was, on the other hand, a somewhat greater deficiency over the first period than there was an excess over the second, indicating for the total period a slight deficiency.

Finally, taking the average of the unmanured plot, of the farm-yard manure plot, and of the three artificially manured plots reckoned as one, as is annually done for the purpose of our estimate; then correcting the result for each year as before for the fluctuations of season; and comparing the results so obtained with the actual averages, the actual results show a very slight excess over the first half of the period, including more than an average of good seasons, and a somewhat greater, but still small, deficiency over the second period, including more than the average of bad seasons. The average of the whole indicates, therefore, no gain by accumulation, but if anything a slight loss.

Comparing the direct average of the experimental plots with that actually adopted as the average for the United Kingdom each



year, the experimental plots indicate for the whole twenty-eight years about three-quarters of a bushel less per acre per annum than the actually adopted estimates founded upon them.

Taking the average of the twenty-eight years' adopted estimate of produce per acre as 100, the first column of the following table shows the deviation from this general average for the whole period, over the first eight, the second eight, the third eight, and the last four, years of the twenty-eight; and the second column shows the deviation, from the same standard, of the average produce per acre on the selected plots.

TABLE I.—*Showing the Deviation over each separate Period from the adopted Average of the whole Period taken as 100.*

	Actually Adopted Averages.	Averages of Plots 3, 2, and 7, 8, and 9.
First eight years, 1852-59 .....	103	101
Second     "         '60-67 .....	104	106
Third       "         '68-75 .....	98	99
Last four years,   '76-79 .....	89	71
Total period, twenty-eight years....	100	98

So far as the annually adopted estimates are correct, the figures in the first column indicate the actual fluctuations in the average produce per acre of the country at large, due to the characters of the seasons, over each period compared with the others, and with the total period.

The first period of eight years included two of considerably over average, another over average, three rather under, and two very much under average. The result was, however, upon the whole slightly over the average of the twenty-eight years. The adopted average produce showed 3 per cent. over the average of the twenty-eight years, and 2 per cent. over the actual average on the selected plots, a higher figure than the actual average having been adopted in the case of the two years of very low produce.

Within the second period of eight years, there were two of the highest yield over the twenty-eight years, two more somewhat over average, two under, and two much under average. In this period highly productive seasons prevailed; the adopted average is 4 per cent. over the average of the twenty-eight years, and the actual average on the selected plots is 6 per cent. over, or 2 per cent. higher than the adopted average.

In the third period of eight years there was only one of really high produce, two more were over average, one was under, and four were considerably under average, the mean of the whole being under average. The adopted average for the period shows 2 per



cent. under the average of the twenty-eight years, whilst the average of the experimental plots shows 1 per cent. under the average.

The last four years include only one over average, two under, and one (1879) very abnormally under average. Over this period, the adopted average amounted to only 89 per cent. of that for the twenty-eight years; and, with the unusual prevalence of bad seasons, the experimental plots showed only 71 per cent., or much lower than the adopted average.

Thus, it appears that, in fairly average seasons, the mean produce of the experimental plots fairly represents the average produce; that in seasons of unusual abundance the experimental plots indicate too high a figure; and that in seasons of great deficiency they give too low a figure. Upon the whole, it is concluded that we have no better basis for estimating the average yield of the country each year, than that of the average produce of the same selected plots as heretofore relied upon; but that, as heretofore, some judgment must be exercised each year, according to the characters of the season, in deciding whether to adopt the actual figure indicated by the experimental plots, or in which direction, and in what degree, it should be modified. It will, moreover, have to be considered from time to time, whether any reduction of area that may take place is in greater degree due to the elimination of districts where the soil, or the climate, or the combination of the two, is the less, or the more, favourable for the crop; for it is obvious that, other things being equal, the average produce per acre of the remaining area will increase or diminish accordingly.

The next point is to test, as far as the means exist to that end, the correctness of the estimates of the aggregate home produce, and of the consumption per head per annum, as given in our former paper for the first sixteen years, and as annually published as forecast since that period.

In our annual estimates we have adopted a figure for the average produce per acre over the United Kingdom, calculated the aggregate produce, deducted from this the amount required for seed, and then estimated how much would be required, from stocks and imports, to make up the total requirement for consumption, this being reckoned at a fixed rate per head of the population. Now, however, we have the actual record of the imports each year as a fixed element of the inquiry; and, adopting the same returns or estimates as to area and population as heretofore, the question now is—not what will be the imports, but how far the estimates of home produce have been correct? and how far these estimated amounts, minus the quantities required for seed, and plus the actual imports,

give a total corresponding with the estimated requirement for consumption?

The following table shows the averages, for the first eight, for the second eight, for the third eight, for the succeeding three, and for the total period of twenty-seven years, of—

1. The aggregate home produce of wheat, deduced by calculating the amount required for consumption (at the rate of 5·1 bushels per head per annum during the first eight years, and of 5·5 bushels in each subsequent year, as up to this time assumed), deducting from this the imports, and adding  $2\frac{1}{4}$  bushels per acre for seed.

2. The aggregate home produce calculated according to the annual estimates of the average produce per acre, as previously published.

3. The difference between the estimate of total home produce founded on consumption and imports, and that founded on the annually adopted estimates of average produce per acre.

4. The average produce per acre, calculated from the aggregate home produce founded on the estimated requirements for consumption and the imports.

5. The average produce per acre, according to the annually adopted estimates.

6. The difference between the average produce per acre calculated from the aggregate home produce deduced from consumption and imports, and the annually adopted estimates of average produce per acre.

TABLE II. — *Comparing the Estimates of Home Produce founded on Requirement for Consumption and Imports, with those founded on the Annually Adopted Estimates of Average Produce per Acre, over the United Kingdom.*

	Aggregate Home Produce.			Average Produce per Acre.		
	Deducted from Calculated Requirements for Consumption and Imports.	According to Annually Adopted Estimates of Average Produce per Acre.	Annually Estimated + or - Calculated according to Requirements, &c.	According to Consumption and Imports.	According to Annually Adopted Estimates.	Annual Estimate + or - Calculated.
<i>Averages for—</i>	Qrs.	Qrs.	Qrs.	Bshls.	Bshls.	Bshls.
8 yrs., 1852-59	14,390,956	14,310,779	- 80,177	28 $\frac{1}{8}$	28	- 0 $\frac{1}{8}$
8 „ '60-67	13,312,217	13,309,247	- 2,970	28 $\frac{3}{8}$	28 $\frac{3}{8}$	0
8 „ '68-75	12,174,772	12,699,155	+ 524,383	25 $\frac{5}{8}$	26 $\frac{3}{4}$	+ 1 $\frac{1}{8}$
3 „ '76-78	10,393,500	11,166,910	+ 773,410	25 $\frac{1}{2}$	27 $\frac{1}{4}$	+ 1 $\frac{3}{4}$
27 yrs., 1852-78	12,970,521	13,181,636	+ 211,115	27 $\frac{1}{4}$	27 $\frac{5}{8}$	+ 0 $\frac{3}{8}$

Leaving out of view for the present, any consideration of the

inevitable discrepancies which must appear between the results of these two modes of estimate for individual years, it is obvious that, whether we compare the aggregate home produce founded on the requirements for consumption and on imports, with that founded on the annually adopted estimates of produce per acre, or compare the estimated average produce per acre itself arrived at in the two different ways, there is, taking the average of the twenty-seven years, comparatively little difference between the results thus variously arrived at. The annually adopted estimates of produce per acre over the United Kingdom give, however, the higher result.

It is obvious that, to bring out still more close conformity of result from the two modes of estimate, we must either raise the estimate of requirement for consumption per head, or lower that of the average produce per acre over the United Kingdom, for some of the years. Unfortunately, we have little else than judgment to aid us in deciding between these two alternatives. If, however, we compare the average result by the two methods for shorter periods—for the first, for the second, for the third eight years, and for the last three years, of the twenty-seven, for example—it is seen that the results of the two estimates agree very closely indeed for the first two periods of eight years each; but that, for the third and fourth periods, those founded on the requirements for consumption and the imports, are considerably lower than the average of the annually adopted estimates for those periods. The fact is that, for each of the first two periods, the estimated consumption was itself finally founded on the estimated home produce and the imports of the period; so that, although there will be discrepancy in the results arrived at in the two ways for individual years, there could not be material disagreement over the whole of either of those periods. For each of the last two periods, however, the estimate of consumption per head has been annually adopted independently, as forecast, and the discrepancy between the results of the two modes of estimate for those periods has, therefore, a real significance.

Independently of the question of whether or not any correction in the estimates for individual years should be made, the foregoing results would lead to the conclusion that the actual consumption per head, taken together with the amount consumed by stock, has been greater over the last two periods than has been annually assumed. If now we assume the requirement per head to have been 5·6 bushels over the third eight years, and 5·65 bushels over the last three years, instead of, as previously, 5·5 bushels over those eleven years, this would bring the two estimates into very much closer agreement. We should then have the average produce

per acre per annum over the United Kingdom, for the respective periods, as follows:—

TABLE III.

	Average Produce per Acre.	
	According to Increased Consumption, and Imports.	According to Annually Adopted Estimates.
	Bshls.	Bshls.
Average 8 years, 1852-53—1859-60.....	28 $\frac{1}{8}$	28
„ 8 „ '60-61— '67-68.....	28 $\frac{3}{8}$	28 $\frac{3}{8}$
„ 8 „ '68-69— '75-76.....	26 $\frac{1}{2}$	26 $\frac{3}{4}$
„ 3 „ '76-77— '78-79.....	27	27 $\frac{1}{4}$
Average 27 years, 1852-3—1878-9 .....	27 $\frac{5}{8}$	27 $\frac{5}{8}$

It will be observed that, even with the estimates of the average consumption per head raised as above supposed, the average produce per acre founded on the annual estimates is slightly higher over the last two periods than that founded on consumption and imports. It must be borne in mind that the quantity of wheat consumed by farm stock is an unknown and varying element; and, either the estimate of the consumption per head of the population must be fixed to include the average consumption in other ways, or the annual estimates of produce per acre, and of the aggregate home produce founded upon them, should exceed those founded on consumption and imports. It may be remarked that an increase of one-tenth of a bushel in the consumption per head per annum would, if derived from home produce, represent an increase of 1 bushel per acre per annum over the United Kingdom, assuming a population of 33 millions, and an area under the crop of 3,300,000 acres; figures which closely represent the actual facts a very few years ago. It is obvious that, with an increasing population, and a diminishing area under wheat, such an assumed increase in consumption per head would correspond to more than a bushel per acre.

The following Table (IV) shows the amount of home produce required for consumption within each harvest-year, as calculated by deducting the imports from the estimated total requirement for consumption, adopting the increased estimates of consumption per head, as above assumed, for the last eleven years; and, for comparison with the result so obtained, there is given the amount of home produce available for consumption each year, according to the annual estimates of the average produce per acre, with 2 $\frac{1}{4}$  bushels per acre deducted for seed. The difference between the two is shown in the last column.



TABLE IV.

Harvest Years; 1st Sept. to 31st Aug.	Total Required for Consumption: At 5 <sup>1</sup> / <sub>2</sub> Bushels 1st 8 Years; at 5 <sup>5</sup> / <sub>8</sub> Bushels 2nd 8 Years; at 5 <sup>6</sup> / <sub>8</sub> Bushels 3rd 8 Years; at 5 <sup>6</sup> / <sub>8</sub> Bushels last 4 Years, per Head per Annum.	Imports.	Difference: Required from Home Produce within each Harvest Year.	Home Produce Available for Consumption according to Annual Estimates of Average Produce per Acre (2 <sup>1</sup> / <sub>2</sub> Bushels per Acre Deducted for Seed).	Available Home Produce according to Annual Estimates + or - Calculated Requirement within each Harvest Year.
	Qrs.	Qrs.	Qrs.	Qrs.	Qrs.
1852-53	17,538,354	5,902,000	11,636,354	10,433,464	- 1,202,890
'53-54	17,607,749	6,092,000	11,515,749	9,337,546	- 2,178,203
'54-55	17,701,710	2,983,000	14,718,710	16,427,742	+ 1,709,032
'55-56	17,816,807	3,265,000	14,551,807	12,776,300	- 1,775,507
'56-57	17,932,364	4,112,584	13,819,780	13,007,453	- 812,327
'57-58	18,055,662	5,795,687	12,259,975	16,143,915	+ 3,883,940
'58-59	18,183,671	4,555,670	13,628,001	15,147,874	+ 1,519,873
'59-60	18,306,247	4,516,332	13,789,915	12,004,575	- 1,785,340
1860-61	19,874,968	10,023,968	9,851,000	9,956,012	+ 105,012
'61-62	20,025,576	9,099,455	10,926,121	11,175,183	+ 249,062
'62-63	20,165,540	9,205,086	10,960,454	12,882,069	+ 1,921,615
'63-64	20,287,594	6,991,270	13,296,324	16,881,807	+ 3,585,483
'64-65	20,419,321	5,500,705	14,918,616	15,179,783	+ 261,167
'65-66	20,547,130	7,313,026	13,234,104	12,950,305	- 283,799
'66-67	20,684,813	7,633,033	13,051,780	10,458,645	- 2,593,135
'67-68	20,830,600	9,015,543	11,815,057	8,545,890	- 3,269,167
1868-69	21,368,178	8,243,389	13,124,789	15,626,060	+ 2,501,271
'69-70	21,532,105	10,000,004	11,532,101	12,301,205	+ 769,104
'70-71	21,909,347	8,841,090	13,068,257	13,089,893	+ 21,636
'71-72	22,224,385	9,316,600	12,907,785	10,382,493	- 2,525,292
'72-73	22,428,445	12,291,463	10,136,982	10,438,729	+ 301,747
'73-74	22,622,952	11,583,645	11,039,307	9,290,343	- 1,748,964
'74-75	22,840,258	11,739,710	11,100,548	12,898,085	+ 1,797,537
'75-76	23,082,333	13,948,644	9,133,689	9,033,000	- 100,689
1876-77	23,537,495	12,158,006	11,379,489	8,857,015	- 2,522,474
'77-78	23,826,133	14,511,181	9,314,952	10,039,073	+ 724,121
'78-79	24,058,216	14,431,971	9,626,245	11,698,672	+ 2,072,427
'79-80	(24,334,025)	—	—	(5,047,840)	—
<i>Averages</i>					
8 years 1852-59	17,892,820	4,652,784	13,240,036	13,159,859	- 80,177
8 years 1860-67	20,354,443	8,097,761	12,256,682	12,253,711	- 2,971
8 years 1868-75	22,251,000	10,745,568	11,505,432	11,632,476	+ 127,044
3 years 1876-78	23,807,281	13,700,386	10,106,895	10,198,253	+ 91,358
27 years 1852-78	20,570,665	8,484,076	12,086,589	12,109,746	+ 23,157

When it is borne in mind that the first estimate (Col. 4) represents the requirement alone each year, and the second (Col. 5)

the amount available for consumption from the estimated actual crop each year, it will be obvious that agreement between the two estimates for individual years is not to be expected. The amounts carried over from one harvest-year to another will of course vary exceedingly according to circumstances, the influence of which cannot with any certainty be estimated. We have, for example, no reliable information as to the quantity of home produced wheat held in the farmers' hands, the quantity consumed by farm stock, or otherwise used, or the quantity of foreign wheat held over in the granaries. Then, again, the actual length of the period to be provided for, dependent on the earliness or the lateness of consecutive harvests, has to be taken into account.

Referring to the actual differences for individual years, as shown by the figures in the last column of the Table (IV), it is obvious that, whilst there may be, and frequently is, an excess of wheat available over that required for consumption within the harvest-year, there cannot be an actual deficiency. Without attempting to account for each individual difference, it may be observed that the deficiencies which the figures indicate in some of the earlier years would doubtless be compensated, at any rate in part, if the balance were brought forward from the immediately preceding years; the last three of which were seasons of more than average productiveness, and of lower than average price, conditions which imply abundance. Then as to some of the excesses. It may be mentioned in illustration that, in each of the four consecutive years, 1862-65, there was more, and in two of them very much more, than the average produce over the country at large; and it was estimated that, at the harvest of 1865, there still remained over from the extraordinary crop of 1863, and the abundant one of 1864, wheat equal to from one-third to one-half of an average crop; and that, even at the harvest of 1866, some of the crop of 1863 remained unthrashed. It may, indeed, be stated generally, that as a rule the excesses follow, as they should, seasons of high productiveness, and the deficiencies seasons of low productiveness.

Discrepancies between the two results for individual years are, in fact, inevitable; and the figures strikingly illustrate the difficulty of the subject so far as individual years are concerned. But if the bases of the estimates are correct, the results of the two methods should agree when averaged over a sufficient number of years. An examination of the averages for the different periods, given at the foot of the table, will show that, with the increased estimates of consumption per head for the last two periods, the agreement between the differently obtained results is really very close.

Finally, as to the questions—whether our previous estimates of

the consumption of wheat per head of the population, over the first two periods of eight years each, are correct? and whether we are to conclude that there really has been an increased consumption per head in the subsequent years?

There can be no doubt that the average consumption per head has increased in the United Kingdom as a whole since the establishment of free trade in corn; and there can be but little doubt that it has done so less rapidly during the later, than during the earlier, years since that change. This will be the case, at any rate with the much larger proportion of the total population which is comprised within England and Wales; though the increased consumption has probably been developed later in Scotland, and perhaps in Ireland also. The amount consumed will obviously vary according to the prosperity or otherwise of the people, to the price of wheat itself, and to that of other articles of food also. With regard to the price of wheat, barring exceptional cases, there has been a general tendency to decline throughout the period to which our estimates refer. Independently of the influence of lower prices, and of the increased prosperity of the masses of the population, among the circumstances tending to increase the consumption of wheat in recent years may be mentioned the increased price of meat; whilst, among those tending to limit the rate of increase of consumption may be noted the fact that the proportion of the total wheat consumed which is derived from foreign sources is rapidly increasing, and the drier foreign wheats will undoubtedly yield a larger percentage of flour, and flour of better quality, than much of the home-grown grain.

As already explained, the estimates of consumption per head over the first sixteen years, although controlled by the calculation of numerous dietaries, were finally founded on the estimated amounts of home produce, and the ascertained amounts of the imports; and they were calculated for the first half, and the second half, of that period, separately, in order to ascertain whether or not an increased rate of consumption were indicated. The result was that the so-reckoned available supplies showed a consumption of about 5·1 bushels per head per annum over the first eight years, and of 5·5 bushels over the second eight years. Of course, even supposing that the estimates of the available supplies over the whole period were correct, and that there was a considerable increase in the rate of consumption during the period, it is not to be assumed that there was the sudden rise from the first to the second eight years, which, taking the averages over those separate periods shows. It is, indeed, doubtful whether the estimates of consumption per head over the earlier years, as deduced from the amounts estimated to be available from the home produce and the imports,



may not be somewhat too low, due to an under estimate of the area under the crop in those years. But, as no data exist upon which to base a trustworthy correction, the safer alternative seems to be simply to call attention to this probability.

Then, again, a careful consideration of our annual estimates of produce per acre subsequent to the first sixteen years, leads to the conclusion that some are more probably too low than too high. For 1866 and 1867, for example, our own estimates are lower than those of some others; and that for 1867, at any rate, may we think probably be somewhat too low. But here, again, there is lack of sufficient evidence to justify an alteration.

Upon the whole, we are disposed to conclude that our estimates of consumption per head during the first period of eight years, may be somewhat too low. We also conclude that our previously published estimates of consumption for the years subsequent to the first sixteen, are more probably too low, than that our estimates of average produce per acre, and of aggregate produce founded upon them, are too high. For the reasons given, however, we adopt our previous estimates of average produce per acre each year without change. We also adopt our previous estimates of consumption per head for the first two periods of eight years each without change. But, for the third period of eight years we assume the consumption to have been at the rate of 5·6 bushels per head, and for the last three years at the rate of 5·65 bushels, instead of 5·5 bushels over those eleven years, as previously reckoned.

Accordingly, until further experience should indicate further change to be necessary, we propose to adopt  $5\frac{2}{3}$  bushels as the average consumption per head of the population per annum, over the United Kingdom.

Table IV, p. 325, shows the estimated aggregate consumption of wheat in each year, and the amount of it derived from home and foreign sources respectively; and Table V, which follows, brings to one view the particulars of the estimated home produce, of the imports, of the consumption per head, of the average "Gazette" price per quarter, and of the cost of wheat (at the average "Gazette" price) in the United Kingdom, in each of the twenty-eight (or twenty-seven) harvest years, from 1852-3 up to the present time.

Referring to the upper portion of the table for all details, and to the text for further information respecting some of them, the general tendency of the changes which have taken place within the period of our review is clearly indicated in the average results over the periods of eight, eight, eight, three, and twenty-seven years, given at the foot of the table.



According to the figures, the area under wheat was about 20 per cent. less over the last three, than over the first eight years, of the twenty-seven.

The average produce per acre over the United Kingdom was considerably less over the last two, than over the first two periods. It amounted to only  $27\frac{5}{8}$  bushels over the whole twenty-seven years, as compared with  $28\frac{1}{4}$  bushels which we had previously assumed to represent the average produce per acre of the country at large.

Owing to the reduced produce per acre in recent years, the aggregate home-produce has reduced in a somewhat greater degree than has the area under the crop.

The annual imports averaged about three times as much over the last three, as over the first eight, of the twenty-seven years.

The total consumption of wheat per annum has increased from an average of about 18 million quarters over the first eight years, to nearly 24 million quarters over the last three years.

According to the figures, the average consumption per head per annum was only about 5·1 bushels over the first eight years, but it amounted to 5·67 bushels over the last three years.

The price of wheat per quarter has declined from an average of 57s. 8d. over the first eight years (including the period of the Crimean War), to 49s. over the last three years.

The annual value of the home produce available for consumption has declined from an average of nearly 38,000,000*l.* over the first eight years, to less than 25,000,000*l.* over the last three years.

The annual value of the imported wheat has increased from an average of little more than 13,000,000*l.* over the first eight years, to more than 33,000,000*l.* over the last three years.

The annual value of the total wheat estimated to be consumed has ranged from under 40,000,000*l.* to more than 71,000,000*l.*; and it has increased from an average of about 51,500,000*l.* over the first eight years, to more than 58,000,000*l.* over the last three years.

The average annual cost of wheat per head has somewhat reduced in the later periods; and it has been 36s. 2d. over the twenty-seven years.

Over the whole period of twenty-seven years, 40·4 per cent. of the wheat consumed has been derived from imports; and the amount supplied from foreign sources has increased from an average of 26·5 per cent. of the total over the first eight years, to 57·4 per cent. of the total consumed over the last three years, of the twenty-seven.

TABLE V.—Particulars of Home Produce, Imports, Consumption, and Price of Wheat, in

Harvest Years, 1st Sept. to 31st Aug.	Estimated Home Produce.			Available for Consumption.			Population (middle of Harvest Years).	Available for Consumption per Head.		
	Area under Crop.	Average Yield per Acre.	Total Home Produce.	Home Produce, less 2½ Bushels per Acre for Seed.	Imports, less Exports.	Total.		From Home Pro- duce.	From Im- ports	Total.
	Acres.	Bhls.	Qrs.	Qrs.	Qrs.	Qrs.		Bhls.	Bhls.	Bhls.
1852-53	4,058,731	22 $\frac{7}{8}$	11,574,982	10,433,464	5,902,000	16,335,464	27,511,144	3'03	1'71	4'74
'53-54	4,013,963	20 $\frac{7}{8}$	10,466,473	9,337,546	6,092,000	15,429,546	27,619,999	2'70	1'76	4'46
'54-55	4,036,969	34 $\frac{3}{4}$	17,563,140	16,427,742	2,983,000	19,410,742	27,767,388	4'73	0'85	5'58
'55-56	4,076,447	27 $\frac{3}{8}$	13,922,801	12,776,300	3,265,000	16,041,300	27,947,933	3'65	0'93	4'58
'56-57	4,213,651	27	14,192,543	13,007,453	4,112,584	17,120,037	28,129,198	3'70	1'16	4'86
'57-58	4,185,974	33 $\frac{1}{8}$	17,321,221	16,143,915	5,795,687	21,939,602	28,322,607	4'56	1'63	6'19
'58-59	4,131,822	31 $\frac{1}{2}$	16,309,949	15,147,874	4,555,670	19,703,544	28,523,406	4'24	1'28	5'52
'59-60	4,019,725	26 $\frac{1}{8}$	13,135,124	12,004,575	4,516,332	16,520,907	28,715,682	3'34	1'25	4'59
1860-61	3,992,657	22 $\frac{1}{8}$	11,078,948	9,956,012	10,023,968	19,979,980	28,909,045	2'75	2'77	5'52
'61-62	3,898,177	25 $\frac{1}{4}$	12,271,546	11,175,183	9,099,455	20,274,638	29,128,110	3'06	2'49	5'55
'62-63	3,823,947	29 $\frac{1}{4}$	13,957,554	12,882,069	9,205,086	22,087,155	29,331,695	3'51	2'51	6'02
'63-64	3,698,629	38 $\frac{3}{4}$	17,922,048	16,881,807	6,991,270	23,873,077	29,509,228	4'57	1'89	6'46
'64-65	3,685,493	35 $\frac{1}{4}$	16,216,328	15,179,783	5,500,705	20,680,488	29,700,831	4'08	1'48	5'56
'65-66	3,646,691	30 $\frac{3}{8}$	13,975,936	12,950,305	7,313,026	20,263,331	29,886,735	3'47	1'95	5'42
'66-67	3,649,584	25 $\frac{3}{8}$	11,485,091	10,458,645	7,633,033	18,091,678	30,087,001	2'78	2'02	4'80
'67-68	3,628,910	21	9,566,522	8,545,890	9,015,543	17,561,433	30,299,054	2'25	2'38	4'63
1868-69	3,937,275	34	16,733,419	15,626,060	8,243,389	23,869,449	30,525,967	4'09	2'16	6'25
'69-70	3,976,147	27	13,419,496	12,301,205	10,000,004	22,301,209	30,760,150	3'20	2'60	5'80
'70-71	3,773,663	30	14,151,236	13,089,893	8,841,090	21,930,983	31,299,067	3'35	2'26	5'61
'71-72	3,818,848	24	11,456,544	10,382,493	9,316,600	19,699,093	31,749,121	2'62	2'35	4'97
'72-73	3,839,532	24	11,518,596	10,438,729	12,291,463	22,730,192	32,040,636	2'61	3'07	5'68
'73-74	3,670,259	22 $\frac{1}{2}$	10,322,603	9,290,343	11,583,645	20,873,988	32,318,503	2'30	2'87	5'17
'74-75	3,821,655	29 $\frac{1}{4}$	13,972,926	12,898,085	11,739,710	24,637,795	32,628,940	3'16	2'88	6'04
'75-76	3,503,709	22 $\frac{3}{8}$	10,018,418	9,033,000	13,948,644	22,981,644	32,974,761	2'19	3'39	5'58
1876-77	3,114,555	25	9,732,984	8,857,015	12,158,006	21,015,021	33,327,426	2'13	2'92	5'05
'77-78	3,311,859	26 $\frac{1}{2}$	10,970,533	10,039,073	14,511,181	24,550,254	33,736,117	2'38	3'44	5'82
'78-79	3,372,590	30	12,647,213	11,698,672	14,431,971	26,130,643	34,064,731	2'75	3'39	6'14
'79-80	(3,047,752)	(15 $\frac{1}{2}$ )	(5,905,020)	(5,047,840)	—	—	(34,455,257)	—	—	—
<i>Avergs.†</i>										
8 years } 1852-59	4,092,160	28	14,310,779	13,159,859	4,652,784	17,812,643	28,067,170	3'75	1'33	5'08
8 years } 1860-67	3,753,011	28 $\frac{1}{2}$	13,309,247	12,253,712	8,097,761	20,351,473	29,606,462	3'31	2'19	5'50
8 years } 1868-75	3,792,636	26 $\frac{3}{8}$	12,699,155	11,632,476	10,745,568	22,378,044	31,787,143	2'93	2'70	5'63
3 years } 1876-78	3,266,335	27 $\frac{1}{8}$	11,116,910	10,198,253	13,700,386	23,898,639	33,709,425	2'42	3'25	5'67
27 years } 1852-78	3,811,165	27 $\frac{3}{8}$	13,181,636	12,109,746	8,484,076	20,593,822	30,252,388	3'22	2'22	5'44

\* Exclusive of the islands in the British seas.

† Consumption reckoned at 5½ bushels per head per annum the first eight

‡ The "averages" are, in each case, the mere means of the figures in the

*the United Kingdom,\* Twenty-Eight (or Twenty-Seven) Years, 1852-53 to 1879-80 inclusive.*

Average Gazette Price per Quarter.	Value of Wheat available for Consumption (at Average Gazette Price).			Value of Wheat Estimated to be Consumed† (at Average Gazette Price).		Per Cent. of Total Available.		Harvest Years, 1st Sept. to 31st Aug.
	From Home Produce.	From Imports.	Total.	Total.	Per Head.	From Home Produce.	From Imports.	
<i>s. d.</i>	£	£	£	£	<i>s. d.</i>	Pr. cnt.	Pr. cnt.	
44 7	23,257,930	13,156,542	36,414,472	39,095,914	28 5	63·9	36·1	1852-53
72 11	34,043,136	22,210,417	56,253,553	64,194,918	46 6	60·5	39·5	'53-54
70 1	57,565,546	10,452,929	68,018,475	62,029,742	44 8	84·6	15·4	'54-55
73 11	47,219,075	12,066,896	59,285,971	65,847,949	47 2	79·6	20·4	'55-56
60 1	39,076,556	12,354,888	51,431,444	53,871,810	38 4	76·0	24·0	'56-57
47 8	38,476,331	13,813,054	52,289,385	43,032,661	30 5	73·6	26·4	'57-58
43 8	33,072,858	9,946,546	43,019,404	39,701,015	27 10	76·9	23·1	'58-59
48 3	28,961,037	10,895,651	39,856,688	44,163,821	30 9	72·7	27·3	'59-60
55 3	27,503,483	27,691,212	55,194,695	54,904,599	38 0	49·8	50·2	1860-61
58 2	32,501,157	26,464,248	58,965,405	58,241,050	40 0	55·1	44·9	'61-62
47 8	30,702,264	21,938,788	52,641,052	48,061,204	32 9	58·3	41·7	'62-63
41 0	34,607,704	14,332,104	48,939,808	41,589,568	28 2	70·7	29·3	'63-64
40 1	30,422,815	11,024,330	41,447,145	40,923,723	27 7	73·4	26·6	'64-65
46 6	30,109,459	17,002,785	47,112,244	47,772,077	32 0	63·9	36·1	'65-66
60 4	31,550,246	23,026,316	54,576,562	62,399,183	41 6	57·8	42·2	'66-67
68 4	29,198,458	30,803,105	60,001,563	71,171,217	47 0	48·7	51·3	'67-68
50 0	39,065,150	20,608,473	59,673,623	53,420,445	35 0	65·5	34·5	1868-69
46 2	28,395,282	23,083,343	51,478,625	49,703,276	32 4	55·2	44·8	'69-70
54 2	35,451,794	23,944,619	59,396,413	59,337,815	37 11	59·7	40·3	'70-71
56 7	29,373,803	26,358,214	55,732,017	62,876,489	39 7	52·7	47·3	'71-72
57 4	29,924,356	35,235,527	65,159,883	64,294,876	40 2	45·9	54·1	'72-73
61 3	28,451,675	35,474,913	63,926,588	69,282,791	42 10	44·5	55·5	'73-74
44 7	28,751,981	26,169,770	54,921,751	50,914,742	31 3	52·4	47·6	'74-75
45 11	20,738,263	32,023,761	52,762,024	52,993,190	32 2	39·3	60·7	'75-76
54 7	24,172,270	33,181,225	57,353,495	64,237,747	38 7	42·1	57·9	1876-77
50 10	25,515,977	36,882,585	62,398,562	60,558,088	35 11	40·9	59·1	'77-78
41 7	24,323,489	30,006,473	54,329,962	50,021,041	29 4	44·8	55·2	'78-79
—	—	—	—	—	—	—	—	'79-80
57 8	37,709,059	13,112,115	50,821,174	51,492,229	36 9	73·5	26·5	<i>Avergs.‡</i> { 8 years 1852-59
52 2	30,824,448	21,535,424	52,359,872	53,132,828	35 11	59·7	40·3	{ 8 years 1860-67
52 0	30,019,038	27,862,328	57,881,366	57,852,953	36 5	51·9	48·1	{ 8 years 1868-75
49 0	24,670,579	33,356,761	58,027,340	58,272,292	34 7	42·6	57·4	{ 3 years 1876-78
53 5	31,941,929	22,227,749	54,169,678	54,616,332	36 2	59·6	40·4	{ 27 years 1852-78

years, '55 the second eight, '56 the third eight, and '565 the next three years.  
columns for the respective periods.



DISCUSSION *on* CAPTAIN CRAIGIE'S, *and* MESSRS. LAWES' *and*  
GILBERT'S PAPERS.

MR. J. B. LAWES, LL.D., F.R.S., said that some apology was due to the Statistical Society for offering them a paper so full of guesses, instead of figures which could be altogether relied upon, more especially when his paper followed one from Captain Craigie, based upon the valuable agricultural statistics for which we are indebted to the exertions of Mr. Caird. If he (Mr. Lawes) had been a native of Lincolnshire, he should have found some fault with Captain Craigie for having excluded that county from the first-class corn district of England; compared with Huntingdon, which was one of the five counties called first-class, Lincolnshire had one million acres of arable land against 150,000 acres in Huntingdon; Lincolnshire grew six times as many acres of wheat, and had as large a proportion of arable to pasture as Huntingdonshire. The reason for the exclusion of Lincolnshire was apparently due to the area of waste land being larger in Lincolnshire than in Huntingdonshire. One great question of interest brought out in the statistics was the decline of the area under wheat; in the decennial period referred to by Captain Craigie, it will be found that the following eight counties had reduced their acreage from about 25 to 53 per cent., Westmoreland, Northumberland, Cumberland, Yorkshire, Derbyshire, Lincolnshire, Lancashire, and Cheshire; the eight counties in which the area of wheat had declined the least were the following:—Herts, Huntingdon, Norfolk, Suffolk, Hants, Berks, Surrey, and Beds. The county in which the decline had been the smallest was the county in which he (Mr. Lawes) lived—Herts, there it was less than 2 per cent.; whether this was due to the example of his experiments where wheat had been grown continuously for thirty-six years he could not say, but at all events the farmer had not followed his example in one point, as he had substituted barley for wheat. With the decline in wheat growing, an increase in the acreage of barley was evident in some counties, especially in Suffolk, the increased area under barley much exceeded that which was previously under wheat. The agricultural statistics show that the increase of pasture has proceeded far more rapidly than the decline of arable land; it would appear probable that some land originally considered as waste was now entered as pasture. He noticed that in one year there was in Devonshire an increase of 15,000 acres of pasture without any decline in the arable land. Although admitting that a considerable amount of arable land had been laid down in pasture, he thought that the figures given in the statistics must be used with some caution, but on the whole they were fairly correct and of great value.

Mr. E. POWER said the writers of the second valuable paper to which they had listened, assumed that the consumption of wheat was 5·1 bushels per head of the population per annum. In 1866 he wrote to six or seven of the most reliable and best informed people in each county in England and Wales, to ascertain what they considered the average produce of wheat per acre in their respective counties, and he applied the information he received to



the acreage as given by the statistical returns. Having friends in the midland counties connected with agricultural pursuits, and more especially with milling and bread making, he was able to ascertain that the consumption of certain districts in Warwickshire—which might be considered a fair type of the country—was about 6 bushels per head of the population of men, women and children. These returns showed the average yield of wheat per acre for the seven years ended in 1866 was very nearly 31 bushels of 61 pounds, which he (Mr. Power) was aware was a higher yield per acre than was generally believed, but applying this to the acreage for England and Wales, after deducting  $2\frac{1}{3}$  bushels per acre for seed and adding the production of the remainder of the United Kingdom, and the average yearly import of wheat and flour for the same period, the result corresponded very closely with the consumption of 6 bushels per head, assuming a deduction of two millions from the population for the non-bread-eating people of the United Kingdom. Everybody in the corn trade must be especially interested by the papers given by Mr. Lawes from time to time, for whether they were accurate or not, they were most serviceable in enabling a comparison to be made between one year and another. The information had been on the whole relatively correct, and it had been a very good guide. In one part of the paper attention was called to the lower prices of wheat increasing consumption, but he was himself disposed to think that low priced bread tends rather to decrease than increase the consumption, because bread is always the cheapest food, and when the price of bread is high, the main bread-eating population are unable to get much meat, and are obliged to live more largely on bread. On the other hand low prices produce waste, and to a certain extent cause wheat to be used for other purposes than human food. He (Mr. Power) doubted very much whether wheat of good quality was ever used for cattle feeding as much as was supposed, and instanced the harvest year 1874-75 as an example, when there was every inducement to use it. The abundance of old wheat in the country when the harvest of 1875 was gathered proved it could not have been so used to any great extent.

Mr. EDWIN CHADWICK, C.B., said that the deficiencies of the statistics afforded by the census, to which Captain Craigie in his able paper had adverted, had restricted him more than he had stated, and would continue to restrict the progress of statistical science until the mode of taking the census in this country was altered. When the census was first taken here, the administrative unit was the parish, and the officers—the overseers—were very illiterate: in the rural districts, the overseers were mostly farmers, many of whom could neither read nor write. As a consequence, it became necessary to get the work of summarising done in the central department, where a hundred clerks were employed, and they occupied about three years in getting out the summaries of the occupations. The particulars to be summarised had to be restricted, and much matter of local interest and importance excluded, in order to avoid further central labour and central delay. The experience of changes in getting out Mr. Kelly's

directories was in the counties, of the higher classes enumerated in them, 10 per cent.; in suburban districts in the metropolis it was 20 per cent.; and of the labouring population, with the emigration and migration to towns, the changes would probably be as great or greater. So that during the three years that elapsed between the time of taking the enumeration and getting out the summaries, some 30 or 60 per cent. of error as to the identical population would often occur. It was the practice to estimate for a regular increase of population. This might be true of the whole kingdom, but it was proved in particular places, that instead of an increase there had been a material decrease in the population. The system of central summaries was fraught with large errors of omission, especially as respects the particulars of the agricultural population. These errors could not be remedied, because under this bad centralised practice any requisite addition would add to the present grievous delay. It was objected to the introduction of the enumeration of the different religious denominations, on account of the delay as well as the expense it would occasion. The remedy for all this was to summarise locally. Instead of the old local unit, the parish, or the commune, we had now the new local administrative unit, the union, with its paid officers; men of middle class education, as the clerk of the union, who was superintendent registrar: 625 of them, and 3,000 health officers and registrars, rate collectors and union school teachers; all trained in account keeping, and some of them practised in summarising the results of elections. It was unwarrantable, as the central office presumed to assume, that these permanent and responsible officers could not do the work required as well as the temporary clerks previously unpractised, and of less responsibility. Instead of paying one clerk for thirty-six months to get out the work, could they not pay thirty-six clerks in the locality for one month each to get out the summaries? Errors would be corrected immediately on the spot, which at the centre were passed over, or only rectified by long correspondence. By proper local arrangements, the census, which was not now completed in less than three years, might be got out better in three months, at no greater expense. The census of France, by this method of summarising locally, got out a census in months instead of in years. But a great evil of the present system was the exclusion of a great deal of stocktaking, and of statistics of special importance to the locality. Thus for urban districts there was wanted for sanitary purposes summaries of the population of streets, and in rural districts the summaries of the population of villages, that it might be ascertained what were the proportions of deaths to the population;—that it might be seen what was the direction of sanitary service needed, and what were the results of measures taken, which could rarely be done now. In agriculture they wanted to know what was the difference of production in different places and conditions;—what was the difference of production of labour and of wages. It was known that in some districts the labour of two was as efficient as three in another. It was stated the other day in the Chamber of Agriculture that cultivation was cheaper in some northern districts, at one-third higher wages, than in southern

districts. He knew agricultural districts in which the wages since the passing of the Poor Law Amendment Act had nearly doubled; but they had no statistical returns from which they could ascertain the progress of production, nor what had since been the cost of tillage, which was most material to compare with the cost of tillage in other counties. The present statistics of agricultural production were most defective. Formerly the corn factors of Mark Lane sent out men to ascertain the yield of crops, which from practice they did with remarkable accuracy—more accurately often than the farmers themselves. Whilst the farmers' returns gave the yield at 26 bushels of wheat per acre, the yield, according to the Mark Lane examiners, was 32 bushels in the corn growing districts. We know that the yield in some districts did not average more than some 24 bushels, whilst in others it averaged 40; “and these means” of large districts were widely misleading. The defective state of agricultural statistics was, he considered, particularly shown by the second paper read that night, in which a general statistical conclusion was endeavoured to be deduced from the results of one mode of culture with solid manure on one farm. He could have confidently made an advance upon this, and have established a constant on the experience of some twenty sewage farms, where it was shown in contrast with adjacent different old modes of culture, that whilst the yield of the common solid manure agriculture of a fair average was as one, and of the solid manure culture of the market garden farms was as three and a half, the good liquefied manure culture of the sewage farms was as five,—presenting a future of agriculture such as had not hitherto been conceived. The deduction of the consumption of produce from the observation of that of a single family, commonly of a model family, was widely defective. He had endeavoured to get at more correct results by ascertaining from different shopkeepers the amounts of produce they supplied to the different classes of their customers. The statistics of agriculture he considered to be in other important respects extremely defective, and that the first step to improvement was getting the summaries made locally and for the locality itself, sending up to the central department only the summaries of the general results. These decennial returns were from the lapse of time very insufficient and misleading, and quinquennial and even triennial returns were now being sought. At the statistical congress at the Hague he had suggested annual censuses and stocktaking. The principle he proposed was to have a registry made of the individuals or of the family of a house, and then only to ascertain, and return the differences from year to year, as was now being done with the higher classes, in the published works. This, which only required a tenth of the results to be taken yearly, would not be so much more expensive than was supposed. Dr. Engel had indeed succeeded in getting out an annual census for Prussia, and in proving that it might be done; but it was highly unpopular there, and discontinued for reasons which would not exist here, where in the agricultural districts the farmers were not frightened at the knowledge of the Government, but at the too particular knowledge of rent charging landlords.



Mr. CORNELIUS WALFORD thought it was very satisfactory at this juncture in agriculture to have two such important papers as those under discussion. He thought that no society had done so much as this one had done to collect the statistics of food, and when he wrote on famines a year or two ago, he found the Society's *Journal* full of varied information on the subject. Without disparaging the second paper, he considered his friend Captain Craigie's paper a most excellent one. Many of the agricultural returns which should have been made were not, at one time, made; and many of those made were not accurate, and it had been assumed that information had not been given by tenants, because landlords would take advantage of it. As a matter of fact, landlords might, under such circumstances, construe the unwillingness to give the proper returns as resulting from a more favourable condition of things than he believed was the fact. The system of ignorance had misled all concerned, and had in many cases very adversely affected the farmers. A great improvement had now set in in that respect, and the future estimates would consequently be much more correct than the earlier ones were.

Mr. FINLAY DUN was sure that agriculturists would feel very much indebted to Captain Craigie for the way in which he had brought out of the blue books such an amount of practical information, which could easily be understood even by ordinary tenant farmers, who were not perhaps always as well versed in statistics as they should be. One point of great importance brought out prominently in Captain Craigie's paper, was the reduction in the growth of wheat in the last few years, especially in those western counties where it was least likely to produce profitable returns. This indicated a great amount of practical wisdom on the part of the agriculturists. The increased difficulty of producing full crops of wheat at a moderate cost in this country, was felt with greater force where there is a heavier rainfall, such as in parts of Wales and on the poorer clays of Scotland. In the midland counties, with which he was conversant, a larger amount of land had been devoted to the production of barley, but a still greater amount was laid down to grass for one, two, or three years, reducing the costly labour bills; but this grass was not always as profitable as it might be; some of it was wet, much of it was poor, and needed more thoroughly manuring. In many parts of the country reiterated wet seasons had left much of the land foul and in bad condition, and unfit to produce full crops of grass or of anything else. Some low land had been allowed to lay itself down to a sort of coarse grass and weeds, which figured in the statistical returns as "permanent pasture," but was unlikely to produce any full or profitable returns. The relative amount of stock kept on arable and grass land was an important practical matter. The popular opinion was that as land was laid down to grass, a larger number of cattle and sheep can be kept, but those more familiar with the matter knew that to obtain the maximum amount of meat or dairy produce, it is necessary to have a considerable proportion of arable as well as grass land. Even in the moister regions in the west of England, they could not get on well without a fourth or a



third, or in more suitable climates a half of arable land. With such a proportion under the plough, oats, clover, and roots, or other winter food, could be provided for the animals. By thus multiplying their flocks and herds, a great deal more success would result to the British farmer than by endeavouring to increase his output of wheat, which can be cheaper raised on the low-priced lands of America and our colonies. Another point set forth by the statistics of late years, notably in the neighbourhood of large towns, especially in the western portions of England—in Somersetshire, Lancashire, and Cheshire—wheat had been sensibly superseded by potatoes and garden crops. This increased production of vegetables and of smaller fruit, had been a source of considerable income to tenant farmers, has improved the general cultivation of the country, has put more capital into the soil, and obtained for the landlord augmented rents; it has further furnished valuable supplies of food which could scarcely have been obtained at any price twenty years ago by the masses of the population. This diversified cultivation was telling advantageously in many ways, not only finding fuller and more profitable work for the agricultural population, but producing for the working population of the country a varied, valuable, healthful dietary, which he believed would much encourage sobriety and steady habits.

Mr. CLARE SEWELL READ, as a practical farmer, could not agree with the statement made by Mr. Chadwick, that the cost of producing crops on arable land had recently diminished. He could assure the meeting that that was not the case in the eastern counties, for notwithstanding the quantity of machinery now used, the amount spent in farm labour was considerably more than it was some years ago. He could compare his books with those of his father, dating back fifty years, and he found that although at the present time he had all sorts of reaping, mowing, and a variety of other machines, still the amount he paid for agricultural labour was fully 30 per cent. per acre more than his father paid in years gone by. He did not exactly understand the charge of ignorance made against the farmers with regard to agricultural statistics. It had been stated that he did not make the returns because he was afraid his landlord would know what he grew; but the tenant never was asked to state the yield of his crops, and the landlord or his agent must know, without asking, nearly as well as the tenant the number of acres of corn he grew. It was a puzzling, but he supposed a pleasing fact that the area of this small island gradually increased. He did not know where. He lived near the sea coast, but he could not find that the county of Norfolk was any larger now than it was when he was a child. That the cultivated area had increased, astonished and perplexed him: because he was sure of this, that within the last ten years he had known hundreds and hundreds of acres go out of cultivation. Some twenty-five or thirty years ago there was a mania for increasing the arable land, and sheep walks and rabbit warrens were converted into arable land; but in the last ten years much of this land had been reconverted into the state that nature intended it to be in. He was perplexed to know where the increased cultivated area came

from. He thought a great deal of it might be attributed to the loose way in which the early returns were made; and probably the ordnance survey had not been so absolutely accurate as it was at the present time. In the eastern counties they seemed to have grown an increased quantity of barley; but he thought they had reached the limit of the demand, if they might judge from the prices of the last few years. None but the very best samples of barley were appreciated by the brewers, and the consequence was that instead of barley being, as gentlemen were apt to suppose, a very paying crop, only a few of the samples of prime barley found their way into the averages at all. He thought there was an unnecessary complication in the returns in having two columns in respect to grass land, one for hay and one not for hay. Such a division was wholly unnecessary, and he hoped it would be abolished. As to the distribution of cattle, a great deal of what Captain Craigie said was quite true. The returns being taken in the summer, they were not, in the eastern counties, supposed to produce so many cattle as they actually did. They manufactured more meat than grass lands, and with regard to more cattle than formerly being kept on corn lands, that was because the corn farmers were getting so extremely poor that they were obliged to keep a small growing stock, and increase the number of cows to add to the number of cattle. He could only say with what interest the annual statement of Mr. Lawes was looked for throughout the country. He ventured to say that that estimate of the yield was of more use and carried greater weight than all the returns they got from the Board of Trade. He did not mean for a moment to depreciate the use and the value of the statistics furnished; but when they came to see the small difference in the acreage from year to year, and the enormous difference in the yield from year to year, the man was doing infinitely more service to the country who could say what the yield would be, than the official who could only give the statistics of slight variations in the acreage. The soil of Rothampsted was particularly adapted to the growth of good wheat, and the wheat growing districts of the east of England were generally more productive in a wet and cold season than in the parts of the country where the soil was heavy or clayey. He entered his protest against the remark made by one gentleman that little or no wheat was given to the cattle. The quantity of wheat given to the cattle was not so much when wheat was cheap, as when the quality of the home produce was bad. They had this year thousands of quarters of wheat in Norfolk not weighing fifty bushels to the quarter, and if they did not give it to the cattle and pigs, no one would look at it. He quite agreed with the remark made that the consumption of wheat was greater when it was cheaper. The concluding statement in the paper by Messrs. Lawes and Gilbert was enough to break any British farmer's heart. It said that in this last decade we had grown 13 million quarters of wheat less in England, and that they had imported 20 million quarters more from abroad. This was one of the main causes of the very great distress among the agricultural community. He could not sit down without tendering his thanks

on behalf of the farmers to Captain Craigie for his interesting paper, which must have taken up an immensity of time and calculation. In reply to a question by the Chairman, Mr. Read said the produce of the land had not increased rateably with the augmented cost of production. Machinery had doubtless saved a great amount of manual labour; but the farmers had to pay a great deal more than formerly for agricultural labour. They had at their disposal now, however, the means of securing crops with greater facility, and thus preserving a great deal that might otherwise be wasted.

The CHAIRMAN (Dr. W. A. Guy, F.R.S.) said he put the question which Mr. Read had answered more particularly because, having himself occasion to visit one of the counties grouped amongst the most productive in the yield of corn, he had been told over and over again by practical farmers that in their experience the produce of that part of the country had increased very largely indeed—two or three fold in some cases. Of course he did not speak with authority on this subject, but on the information which had been given to him by practical men.

Mr. READ added that the increase in the produce was not so much owing to the increased facilities of cultivation, as the increased use of artificial manures, and the greater consumption of feeding stuffs by sheep and cattle. No doubt there had been an increase in the production, but not in the last few years.

Captain CRAIGIE said he had only a few words to offer in reply to the remarks which had been made. As to the point raised by Mr. Lawes regarding the exclusion of Lincolnshire from the eastern or chief corn division, he would see by a reference to the map, that in making a geographical division the line had to be drawn somewhere, and as Lincolnshire showed below 60 per cent. of her surface in arable land, she was not included in the higher list of corn counties, but reckoned in the first group, while Huntingdon with 65 per cent. of arable land was included in the first district. With reference to Mr. Chadwick's remarks about localising the work of the census, a suggestion had reached him that morning that the area of the county (which was the unit of their agricultural returns) was frequently too large for agricultural analysis, great variety of agricultural practice prevailing occasionally within county limits. Benefit would, it was said, accrue if the statistics could be obtained from smaller areas, possibly from poor law unions. As to the growing of oats in the eastern counties, nothing was more striking than the giving up of oats as a crop in those counties. He was surprised to learn they could not grow oats in Norfolk, especially since he had often seen extremely good crops of oats grown in Lincolnshire at no great distance from that district. He thought Mr. Read was slightly in error when he complained of the classification of grass land and hay land, for he believed that the suggestion made to-night had already been adopted, and the classification altered so as to have one heading. (Mr. Giffen: Yes, at Mr. Read's suggestion. The alteration was made in the last returns.) Captain Craigie added that the returns would, he believed, by this alteration become more accurate. He



thanked the meeting for the way in which his paper had been received.

Dr. GILBERT said, with reference to the question of the consumption of wheat, Mr. Power, who had given them some valuable information on the subject, concluded that it was not less than 6 bushels per head per annum over the United Kingdom, and that the estimates of Mr. Lawes and himself were too low. He (Dr. Gilbert) would remark, however, that their estimate of less than 6 bushels for the United Kingdom, included as one element an estimate of even rather more than 6 bushels for England and Wales; and he thought that Mr. Power was very near the truth if he confined his estimate to England and Wales, but that he was going beyond it in applying his data to the United Kingdom. They had already stated in their paper that they believed their estimate of 5.1 bushels per head for the United Kingdom over the first eight of the twenty-eight harvest years (1852-53—1859-60) was too low, owing to too low an estimate of area under the crops in those years (which, however, they had no means of correcting), and the consequent too low estimate of the aggregate home produce available for consumption over that period. Again, Mr. Power considered that the average produce of the country at large was not less than 30 bushels per acre per annum; but he (Dr. Gilbert) thought that if that yield were assumed for the period of the last twenty-eight years or so, it would be found irreconcilable with the evidence relating to imports, consumption, and other elements of the question. Mr. Chadwick said he could place no confidence in calculations as to the yield of the country at large, founded on the produce of a single farm. But it would have been only reasonable, before making any such general statement, really to consider what were the conditions under which the estimates in question were made. It was at any rate remarkable that, averaged over a period of twenty-seven years, the published estimates of Mr. Caird and of Mr. Shaw-Lefevre agreed within an eighth of a bushel per acre per annum with those of Mr. Lawes and himself, deduced in the way which Mr. Chadwick had in such sweeping terms condemned. Further, if the estimates were wrong, the error would show itself in many different ways. Mr. Chadwick had also objected to their estimates of consumption. But it so happened that they had gone into the question in the very way in which Mr. Chadwick said they ought to have done. They had in the first instance calculated the bread and flour, in 86 different dietaries, arranged in 15 divisions, according to sex, age, activity of mode of life, and other circumstances. Subsequently, they had submitted to careful consideration the numerous results of the same kind collected by the late Dr. Edward Smith. They had also calculated the consumption on the basis of the population, and of the amounts of the home produce available for consumption, and of the imports, each year. Finally, they found that the estimates founded on dietaries confirmed those arrived at on the basis of the population and of the home and foreign supplies.

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## MISCELLANEA.

## CONTENTS :

	PAGE		PAGE
I.—General Results of the Commercial and Financial History of 1879 .....	341	IV.—An Iron Trade Chart for the past Fifty Years .....	380
II.—The Movement of the Population in Russia during the Years 1867-70.....	356	V.—Notes on Economical and Statistical Works .....	382
III.—Lloyd's Statistics of Marine Casualties for the Year 1879 .....	365	VI.—Notes on some of the Additions to the Library .....	388
		VII.—A Quarterly List of the Additions to the Library ....	393

I.—*General Results of the Commercial and Financial History of 1879.*

THE following extracts, taken from the Supplement to the *Economist* of the 13th March, 1880 (being the seventeenth of the series—commenced with the review of 1863, and published as supplements to the *Economist* in the second week of March, 1864-79), are in continuation of a series of similar notices that have appeared annually in the *Journal* for each year since 1865:—

“It is very probable that the six years of depression will, in future, be reckoned from September, 1873, to September, 1879. It is certain that in this country there were few signs of renewed trade during the first nine months of 1879. On the contrary, the year has been one of the most sunless and cheerless of the century. The harvest has been among the worst on record, and until the great influx of orders, first for iron and steel, and then for goods of all kinds, began to pour in from America about August and September, hardly anybody looked for better things than that the winter of 1879-80 should be full of difficulties. As the trade circulars *passim* and other evidence abundantly show, these unfavourable prospects were suddenly brightened by a great volume and a great activity of trade, which fairly set in with October, and has gone on so far with undiminished strength, a cogent evidence of which is the great rise in wholesale prices. For example, during 1879 the wholesale prices in London of the following leading commodities have undergone (chiefly during the closing four or five months of the twelve) these percentage elevations, viz.:—Manilla hemp, 62 per cent.; Scotch pig iron, 50; British bars, 35; tin, 38; raw cotton, 37; cotton yarn, 26; tea, 36; lead, 31; jute, 27; tallow, 25; sugar, 21; silk, 19; flax, 18; wheat, 18; copper, 13; coffee, 13; wool, 9 per cent.

“The foreign wars and negotiations which filled so large a space in 1876-77, and 1878, have mostly come to an end in 1879.

“The gravest danger in Europe is the growing magnitude of armed forces.

“The *Frankfurter Zeitung* very usefully has collected particulars with reference to the two periods, 1865, and fourteen years later, 1879, and from that source we obtain the following summary relative to the general and the military budgets of the leading countries:—

“In 1865 Germany had a budget of 31 million pounds, but the budget is now 66 million pounds sterling. The heaviest budgets in Europe are at the present moment those of France and Russia—France with an expenditure of some 119 million pounds, and Russia with one of 107 million pounds, the latter now ranking before England by some 22 million pounds. In 1865, Russia, like Germany, required an income of less than half as much. Her budget then amounted to 51 million pounds. There is not a European State but has increased its expenditure since 1865, the total for all Europe having risen from 398 million pounds to 585 million pounds.

“As regards the national debts of the different European States, the same may be said of all, except England and Holland, which countries alone show a certain diminution of their debts. Russia especially has raised hers from 208 million pounds to 600 million pounds, and she has been closely followed by Spain and Italy, France now ranking first of all; while in 1865, England was by far the most heavily burdened with debt, standing before France to the extent of 250 million pounds. The total debts of the States of Europe have risen from 2,626 million pounds to 4,324 million pounds. But the most interesting figures of all, are those of the military expenditure. Of a total expenditure for Europe, of 585 million pounds, as much as 160 million pounds are devoted to maintaining armies. In 1865, of 398 million pounds, only 117 million pounds were so devoted. Nearly every State has increased its expenditure, Germany, France, and Russia heading the list. Both in 1865 and 1879, however, Russia and England stand first. Russia spent in 1879, 36 million pounds, England 32 million pounds, France 27 million pounds, and Germany 21 million pounds. In 1865, the German expenditure on war was estimated at 10 million pounds, the Austro-Hungarian at 11 million pounds, the French at 17 million pounds, the British at 27 million pounds, and the Russian at 22 million pounds. Only Italy and Austria-Hungary have since then reduced their army expenditure.

“In fourteen years the military expenditure of Europe has risen at the rate of 3 million pounds a-year, or by no less than 43 million pounds per annum; or from 117 to 160 millions, and, as far as can be judged, will go on increasing with the same, or with greater velocity, till arrested by some combination of three events, viz. (1), a decisive victory by one or more of the armed States over the other, (2) the exhaustion of the means and patience of the unfortunate populations who bear the burden, or (3) (most unlikely of all), such a return of common sense as will produce a pacific policy.

*Gazette Average Price of Wheat (per Imperial Quarter) in United Kingdom, immediately after Harvest, 1873-79, and Total Average Gazette Price of Calendar Years.*

Periods.	1879.	1878.	1877.	1876.	1875.	1874.	1873.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
After harvest .....	49 9	40 4	56 -	47 -	46 -	46 1	64 2
Calendar year } average .....	43 10	46 5	56 9	46 2	45 2	55 9	58 8

"The figure in October, 1879, was 49*s.* 9*d.*, 9*s.* more than 1878, and 6*s.* less than 1877. The average for the whole of 1879 was under 44*s.* No one, judging merely from these figures, would be prepared to say that the harvest of 1878 was barely an average, and that the harvest of 1879 was nearly the worst for wheat and every other kind of field produce, within living memory; and yet this is perfectly true. The cold and rain have ruined hundreds of farmers, and distressed thousands of landlords, but free trade has secured plenty and low prices for the population of this country.

"In the section *passim* on the corn and cattle trade, facts and estimates are given for the fourteen years 1866-79, as regards the wheat harvests of the United Kingdom.

"The summary of these inquiries is that the wheat crop, and the harvest generally of 1879, is not only the worst in the fourteen years, but the worst which has occurred, probably, for thirty years. During the five years 1866-70, the average yield of wheat was 29 bushels per acre, or about the standard or normal yield; but in the five years 1875-79, it was only 24 bushels, or 17 per cent. less; and in the year 1879 it was only 18 bushels, or 40 per cent. less than the usual figure. The 'over average' yields were in 1868, 34 bushels; in 1870, 32 bushels; in 1874, 31 bushels; and in 1878, 30 bushels, or barely an average.

"During the last ten years, 1870-79, the 'under average' yields were no less than seven, 1871, 27 bushels; 1872, 23 bushels; 1873, 25 bushels; then three bad years in succession, viz., 1875, 23 bushels; 1876, 27 bushels; 1877, 22 bushels; and as a climax of misfortune, 1879, with its 18 bushels.

"The results of these bad harvests upon the wheat area of cultivation, and upon the volume of the imports of foreign wheat, have been beyond all precedent. In the foreign, 1866-70, the wheat area was more than 3 $\frac{3}{4}$  million acres; in 1875-79, it had fallen 3 $\frac{1}{3}$  millions, or 14 per cent. less. In 1866-70, the home produce was 12 $\frac{3}{4}$  million qrs.; but in 1875-79, only 9 $\frac{1}{4}$  million qrs.; and in 1879, by about only 6 million qrs. In 1866-70 we imported an average annual quantity of wheat of 8 $\frac{1}{2}$  million qrs.; but in 1875-79, the importation was 13 $\frac{1}{3}$  million qrs., or 58 per cent. more. In the present year, 1879-80, it is pretty certain that the importation will be 18 million qrs.

"But not only have there been defective harvests in this country

in 1879, and the three or four preceding years, but the same calamity, in a form equally, or more severe, has befallen the largest part of Europe. A table is quoted *passim* from the *Bulletin des Halles* giving the average total yield of wheat (in bushels) and the actual produce of 1879. The table can only be an estimate, but it is an estimate by high authority. The abstract of it is as follows (in millions of bushels):—

Countries.	Average.	1879.	Less per Cent.
France, Germany, Austria, Belgium..	528	432	18
Italy, Spain.....	181	165	9
Russia, Roumania .....	207	179	13
	916	776	15

“Indeed, North America has been the only region with a large grain surplus, and that surplus has been, and is in demand all over Europe.

“In France, the distress of the agricultural, wine growing, and silk growing industries is very great. They are discussed in detail by M. Jules Clavé (in the *Revue des Deux Mondes*, 1st February, 1880).

“The happy and beneficial competition of America and Australia in the supply of grain and butcher’s meat of all sorts, will certainly go on and increase, not, perhaps, as it has done during the last two or three years of immense harvests in North America, helped by an excess of railway competition to carry them to the tide water. These are advantages which the American farmer has never had before, and may never have again in the same degree. But English agriculture and cattle raising have a certain natural protection of cost and distance against the colonial and foreign competition, and when the conditions are clearly understood, nothing is more certain than that in this instance, as in all others, when ruin to English industries have been most loudly foretold, no such thing as ruin, but the exact opposite, will, before long, become manifest.

“Various attempts, with apparently increasing success, continue to be made to bring in fresh meat in the raw state from America and Australia.

“*Australian meats, &c.*, show a marked fall in price, the demand having decreased greatly. Domestic consumption of Australian prepared mutton and beef has fallen off immensely since the introduction of American compressed beef, and this has assisted in the lowering of prices. Stimulated by the necessity for meeting the public trade, the Australian preservers are now sending in compressed mutton and beef of excellent quality—pronouncedly superior in many cases to the American. Prices, we are inclined to think, are too low to be remunerative.

“The *Glasgow Herald*, 24th January, 1880, writes as follows regarding the manner in which the importations of American beef reach the retail consumer to the great profit of the butcher:—



“ ‘Very large supplies of American beef (dead and living) continue to reach Great Britain. In the week ending 19th January considerably over 1,000 head of live cattle were imported into this country from the United States and Canada, and in Liverpool alone 7,978 quarters of fresh beef were received, which may be calculated, in all probability, as furnishing  $1\frac{1}{4}$  million pounds of saleable meat, exclusive of the weight of the living cattle, which may be estimated at about 700,000 pounds; or, say, for one week, a total of 2 million pounds of good saleable beef, exclusive of the supply coming to the Clyde. These figures bear out what was stated in the *Herald* a few weeks ago, namely, that the importation of dead meat has enormously increased during the past twelvemonths. For eleven months of 1878, there were imported 47,848,192 pounds of dead meat, while for the same period of 1879 the importations were 56,357,728 pounds—an increase of upwards of 9 million pounds. We do not know the proportion which came to Glasgow, or was sold in our city; but supposing it to be only the odd 9 million pounds, and that all over the price of it was 6d. per pound, it would represent a sum of 225,000 pounds sterling, all of which, according to a recent correspondent, would pass through the hands of the persons who deal in American meat, and ‘avowedly’ sell it for what it is. That number of persons is probably not more in reality than twenty, so that the sum in question would give each dealer a turn over of more than 11,000 pounds per annum, which would not be a bad business as times go.

“ ‘Our agricultural correspondent having renewed his investigations as to ‘what becomes of the American beef?’ writes as follows:—‘I must reiterate my deliberately formed opinion that fully 85 per cent. of the dead meat which reaches this city from America, finds its way to consumers through the ordinary channels, as home bred and home fed beef, and I wish to inform all whom it concerns, that, in asserting this, I make more than an ‘insinuation’—I maintain it to be a fact.’

“ ‘We said twelve months since, in our review of the year 1878: ‘In the United States there are distinct signs of commercial revival. Three or four productive harvests; cost of railway and canal transit reduced almost to a vanishing point by reason of the excess of means of conveyance over the traffic to be conveyed; the stern lessons of adversity in the form of insolvencies and failures penetrating far, even into the retail branches of trade; federal, State, city, and county taxes, and debt, which have carried away no small part of every man’s income—all these causes have established in North America a condition of trade far sounder than has prevailed for more than twenty years. And the full re-establishment of cash payments from 1st January, 1879, has provided a solid basis on which the calculations for the future may rest.’

“ ‘This was the state of circumstances at the close of 1878 in the United States, and everything which happened there during the first half of 1879 was emphatically favourable to further recovery. The successful operations in funding the public debt at lower rates of interest; the wholesale clearances of bankrupt railways under sale and foreclosure at prices to the buyers absurdly small compared with the solid expenditure upon them; the extensive movement of population to the west and north-west (as we explain in some detail in an appendix *passim*); and the certainty of a fourth great harvest in 1879 of wheat and grain coincident with a general scarcity and high prices in Europe—all concurred to produce a sudden and remarkable outbreak of demand at the close of summer. That demand naturally was first directed to the ‘instrumental

articles' of iron and steel to be procured from this country, as being the market where they were cheapest, and best, and most abundant; and the orders accordingly came here on a most extensive scale and with most urgent velocity. From iron and steel the American demand rapidly extended to most of the other kinds of manufactures and merchandise suitable for the States. In point of fact, the facilities and resources of modern commerce, and, in our own case, free trade, open ports, and superior cheapness of production, obtained for us exactly the same sort of benefits as if the grain harvests of the west had been gathered in a part of our own dominions, or in our own island. If, for example, Essex and Norfolk had been but blessed with overflowing abundance, and all the rest of Britain stricken with scarcity, then the demand for manufactures of all kinds in East Anglia would have operated on Lancashire and Cleveland, exactly in the same way (not, of course, to the immense extent, nor in precisely the exact order) as the demand from New York and Chicago.

"While, therefore, the English harvest of 1879 was almost as bad as it could be, we were the first to derive advantage from the transatlantic abundance. There was naturally at first, and there is yet, some hesitation to believe that the revival of trade can be really sound so long as it is not stimulated and supported by the prosperity of our own greatest industry—that of agriculture—and this is a reasonable hesitation. Nor will there be a solid domestic foundation for greater trade until our own harvests and the industries dependent on them are prosperous.

"Beyond the sudden American demand, there was the further fact that in this country the six years of depression had reduced generally prices and the cost of production to a level so low that prudent persons on the look out for speculative and permanent investments had become convinced that no further decline was possible; and hence the first spurt of demand brought forward multitudes of buyers to whom only a slight encouragement was wanting to convert their hesitation into confidence.

"In the United States the prices of iron and steel advanced, in 1879, from 67 to 106 per cent. The advances were, in dollars:—pig iron 17 to 35 per ton; bar iron 43 to 73; Bessemer rails 42 to 70, best iron rails 34 to 57; old iron rails 19 to 36; best scrap iron 20 to 34. The output of coal in the Union rose to 26 million tons, compared with 17½ million tons in 1878. Iron ores were largely imported in the last half of 1879, and it is anticipated that quite half a million tons of iron ores will enter in 1880. The production of iron rails in the Union in 1879 was 450,000, and of steel rails 650,000 tons. . . . The presidents of the western railways estimate that not less than 1½ million tons of rails—steel, if they got them—will be required yearly for a long time; and if this estimate be true, for the United States alone, leaving all the rest of the world out of the reckoning, the prospect is a bright one. In one of the appendices we collect evidence relating to the schemes, more or less advanced, for large railway extensions in various countries and regions.

“The following figures exhibit the production, exports, stock, &c. (31st December in Scotland and North of England—1868-79):—

[In mln. tons, thus 4,970, = 4,970,000, and 720, = 720,000.]

	Production of Great Britain.	Stock, 31st December.	Average Price of Scotch Pig.	Exports.			
				Pig Iron.	Rails.	Other Description.	Total.
	Tons.	Tons.	s. d.	Tons.	Tons.	Tons.	Tons.
1868 ....	4,970,	720,	52 9	552,	583,	905,	2,041,
'69 ....	5,445,	735,	53 3	710,	888,	1,076,	2,675,
'70 ....	5,963,	782,	54 4	753,	1,059,	1,012,	2,825,
'71 ....	6,627,	558,	59 —	1,057,	981,	1,130,	3,169,
'72 ....	6,741,	235,	110 10	1,331,	945,	1,106,	3,382,
'73 ....	6,566,	200,	117 3	1,142,	785,	1,030,	2,957,
1874 ....	5,991,	185,	87 6	776,	782,	928,	2,487,
'75 ....	6,365,	244,	65 9	947,	545,	963,	2,457,
'76 ....	6,555,	545,	58 6	910,	414,	899,	2,224,
'77 ....	6,608,	809,	54 4	881,	497,	965,	2,346,
'78 ....	6,381,	1,034,	48 5	924,	441,	933,	2,296,
'79 *	6,200,	1,027,	47 —	1,227,	463,	1,189,	2,879,

\* Estimated.

“This table shows that the total increase in exports in 1879 over 1878 is 583,024 tons, and as the United States took 550,254 tons over 1878, it follows that there has been a slight increase (say, 32,770 tons) in our trade with other countries: it is also worthy of note that so far the increase has been largely in pig iron, but we may expect hereafter to see a large increase under the head of rails. The shipments of rails for December were 35,877 tons, against 19,500 in 1878.

“The following table shows the distribution of exports during the following years:—

*Total Exports from United Kingdom of Iron, Steel, and Tin Plates to the following Countries, in 1868, 1872, 1878, and 1879.*

[000's omitted, thus 502, = 502,000 tons.]

	1868.	1872.	1878.	1879.
United States .....	502,	888,	157,	707,
Germany and Holland .....	146,	816,	557,	502,
India .....	185,	69,	210,	195,
Russia .....	126,	137,	85,	64,
British North America .....	64,	165,	101,	156,
Australia .....	54,	94,	205,	165,
France .....	107,	108,	112,	106,
Other countries .....	854,	1,102,	872,	981,
Total .....	2,041,	3,382,	2,296,	2,879,

“The shipments to the United States in 1879 consisted of



276,998 pig; 177,842 tons old iron for remanufacture; 155,795 tons tin plates; 44,998 tons rails; and 51,794 tons of other descriptions, principally manufactured iron. The quantity of pig and old material bought is remarkable, and the inference has been drawn that the Americans are only taking our raw materials; this conclusion, however, is scarcely correct, as large orders have been booked for manufactured iron of all kinds—rails, bars, hoops, and sheets—but as these take time to execute, the exports will not show largely for some time to come. On the other hand, pig iron, old rails, and scrap, being in stock and urgently wanted, large quantities have been hurried forward, and this accounts mainly for the large exports during the last few months. The American demand has almost cleared off existing stocks of old rails and scrap, and, in consequence, makers who have been in the habit of using these in their mills, will be compelled to buy pig iron more largely.

“There are many indications that the iron trade is entering upon another of those recurring cycles which follow a period of depression. By way of illustration it may be well to refer to the last period of a similar kind. In the latter part of 1869 (after a depression extending over several years) there was a revival, during which Scotch pig iron advanced from 50s. 6d. to 58s. 6d., and Scotch Staffordshire ‘list’ bars were raised 20s. per ton. The breaking out of the Franco-German war interrupted this improvement, but towards the close of 1871, the upward movement was resumed, and continued till the middle of 1872, when Scotch pig iron reached 137s., and South Staffordshire ‘list’ iron 16*l.* at works. In the autumn there was a fall of 47s. 6d. in pig iron, and 4*l.* in ‘list’ iron, but a reaction immediately set in, which carried Scotch pig iron to 145s., and South Staffordshire ‘list’ iron again to 16*l.* at works.

“The late rise in prices has been very rapid, and a general impression prevails that the advance is quite unnatural and without precedent. To correct this error, it is only necessary to refer to the history of 1852, and the prices of January and December in that year—the only year in which prices were lower than those lately witnessed:—

	January, 1852.	31st December, 1852.
Scotch pig iron at Glasgow .....	35s.	72s. 6d.
South Staffordshire ‘list’ iron at works .....	7 <i>l.</i>	11 <i>l.</i>
Welsh bars at Liverpool .....	4 <i>l.</i> 10s.	9 <i>l.</i>

“1880 opens with very cheering prospects as respects our foreign trade, for not only has America given evidence of a renewed demand for iron of all kinds, but our Eastern markets are full of greater promise than for many years past, whilst other countries are all bare of stocks, and are not likely to delay ordering in face of advancing prices. The only drawback is in the home trade, which is affected by the depressed state of agriculture, but we think too much has been made of this, at least so far as the iron trade is concerned. The home consumption of iron in connection with



agriculture is small in comparison with the demand from ship-builders, engineers, machinists, and other departments which are more dependent on the condition of our export trade. It must also be borne in mind that what has been our loss, has been America's gain, and the iron trade is receiving more than ample compensation in the active trade which has thereby been set in motion.

"As respects the cotton industry, the course of trade was quite as unsatisfactory during the greater part of 1879 as it had been throughout 1878, and it is certain that if a change for the better had not taken place before the close of the year, half the spinners and manufacturers of Lancashire would have been ruined. The profits made during the last two or three months prevented this wholesale bankruptcy; but, except in a comparatively few instances, in which consumers made large purchases of the raw material at low prices, the net result of the year's business is a further increase in the adverse balances which existed at the close of 1878. This is fully demonstrated in the calculation which we give under the head of 'Profits and Losses, 1871-79.'

"Compared with 1878, the consumption in 1879 shows a reduction of about 0·3 per cent.; compared with 1876 the falling off amounts to 8 per cent.; compared with a full rate of consumption, say 63,500 bales of 400 lbs. per week, the reduction is about  $11\frac{1}{4}$  per cent.

"The following table shows that small as was the margin between the price of raw cotton and the value of yarns and goods in 1878, it was still smaller in 1879:—

Description.	Average Prices per Pound.			1879 compared with	
	1877.	1878.	1879.	1878.	1877.
<i>Cotton—</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>
Middling upland .....	$6\frac{5}{16}$	$6\frac{1}{8}$	$6\frac{5}{16}$	$\frac{3}{16}$ higher	No change
Fair Dhollerah.....	$5\frac{3}{16}$	$4\frac{1}{16}$	5	$\frac{1}{16}$ "	$\frac{3}{16}$ lower
<i>Yarn, best seconds—</i>					
30's water twist .....	$10\frac{5}{8}$	$9\frac{9}{16}$	$9\frac{3}{4}$	$1\frac{3}{16}$ "	$\frac{7}{8}$ "
40's mule twist.....	$10\frac{1}{16}$	$9\frac{1}{2}$	$9\frac{9}{16}$	$1\frac{1}{16}$ "	$1\frac{1}{4}$ "
<i>Cloth, per lb.—</i>					
Printers, $4\frac{1}{2}$ lbs. ....	$11\frac{9}{16}$	$10\frac{1}{16}$	$10\frac{1}{2}$	$\frac{5}{16}$ lower	$1\frac{1}{16}$ "
" $5\frac{1}{4}$ " .....	$12\frac{7}{16}$	$11\frac{1}{2}$	$10\frac{3}{4}$	$\frac{3}{4}$ "	$1\frac{1}{16}$ "
Shirtings, 7 " .....	$11\frac{1}{8}$	$10\frac{7}{16}$	$10\frac{1}{16}$	$\frac{1}{4}$ "	$\frac{1}{16}$ "
" $8\frac{1}{4}$ " .....	$10\frac{1}{2}$	$9\frac{7}{16}$	$9\frac{1}{2}$	$\frac{1}{16}$ higher	1 "
<i>Average prices—</i>					
30's and 40's twist .....	$10\frac{3}{4}$	$9\frac{9}{16}$	$9\frac{1}{16}$	$1\frac{1}{8}$ "	$1\frac{1}{16}$ "
Printers and shirtings.....	$11\frac{7}{16}$	$10\frac{9}{16}$	$10\frac{5}{16}$	$\frac{1}{4}$ lower	$1\frac{1}{8}$ "
<i>Margin between—</i>					
Uplands and twist .....	$4\frac{7}{16}$	$3\frac{7}{16}$	$3\frac{3}{8}$	$\frac{1}{16}$ less	$1\frac{1}{16}$ less
" cloth .....	$5\frac{1}{8}$	$4\frac{1}{16}$	4	$\frac{7}{16}$ "	$1\frac{1}{8}$ "

*Exports of Piece Goods and Yarn to the Principal Districts of the World  
at Various Periods, 1820-79.*

[In 1,000's of yards and lbs.]

	1820.		1830.		1840.		1850.	
	Yards.	Per Cent.	Yards.	Per Cent.	Yards.	Per Cent.	Yards.	Per Cent.
<b>PIECE GOODS.</b>								
Europe (except Turkey)	127·7	50·90	137·4	30·94	200·4	25·35	222·1	16·35
Turkey, Egypt, & Africa	9·5	3·79	40·0	8·99	74·6	9·43	193·9	14·27
America (except U. S.)	56·0	22·32	140·8	31·66	278·6	35·24	360·4	26·53
United States	23·8	9·48	49·3	11·08	32·1	4·07	104·2	7·68
British East Indies	14·2	5·66	56·9	12·79	145·1	18·35	314·4	23·15
China, Java, &c.					29·9	3·78	104·3	7·68
All other countries	19·7	7·85	20·2	4·54	29·9	3·78	58·9	4·34
Total yards	250·9	100·00	444·6	100·00	790·6	100·00	1358·2	100·00
Total value, mln. £	13·2	—	15·1	—	16·3	—	20·5	—
<b>YARN.</b>								
	lb.	Per cent.	lb.	Per cent.	lb.	Per cent.	lb.	Per cent.
Europe (except Turkey)	23·0	95·66	56·0	86·69	91·9	77·55	90·7	69·03
Turkey	0·5	2·17	1·5	2·32	3·3	2·78	4·7	3·58
British East Indies	—	—	4·9	7·58	16·1	13·59	21·0	15·98
China, Java, &c.					1·8	1·52	3·1	2·36
All other countries	0·5	2·17	2·2	3·41	5·4	4·56	11·9	9·05
Total lb.	23·0	100·00	64·6	100·00	118·5	100·00	131·4	100·00
Total value, mln. £	2·8	—	4·1	—	7·1	—	6·4	—

	1860.		1870.		1879.	
	Yards.	Per Cent.	Yards.	Per Cent.	Yards.	Per Cent.
<b>PIECE GOODS.</b>						
Europe (except Turkey)	200·5	7·49	294·6	9·06	372·7	10·02
Turkey, Egypt, & Africa	357·8	13·37	670·5	20·61	486·5	13·08
America (except U. S.)	527·1	19·70	594·5	18·28	545·6	14·68
United States	226·8	8·48	103·3	3·18	51·2	1·38
British East Indies	825·1	30·83	923·3	28·38	1,327·6	35·71
China, Java, &c.	324·2	12·11	478·2	14·70	626·6	16·85
All other countries	214·7	8·02	188·4	5·79	307·9	8·28
Total yards	2,676·2	100·00	3,252·8	100·00	3,718·1	100·00
Total value, mln. £	40·3	—	52·5	—	—	—
<b>YARN.</b>						
	lb.	Per cent.	lb.	Per cent.	lb.	Per cent.
Europe (except Turkey)	116·0	58·79	93·7	49·93	110·4	46·84
Turkey	19·6	9·94	14·2	7·56	20·5	8·70
British East Indies	30·7	15·56	31·0	16·51	31·3	13·28
China, Java, &c.	8·8	4·46	20·8	11·08	39·0	16·54
All other countries	22·2	11·25	28·0	14·92	34·5	14·64
Total lb.	197·3	100·00	187·7	100·00	235·7	100·00
Total value, mln. £	9·9	—	14·8	—	—	—

*United Kingdom, 1879-68. Estimated Value of Raw Cotton Imported, Re-Exported, and Consumed. (Ellison's Circular.)*

[00,000's omitted, thus 37,7 = 37,700,000/. The bales are given in full.]

Years.	Import.		Re-Exported.	Consumed, United Kingdom.		
	Value.	Price.	Value.	Value.	Weight.	Bales per Week, 400 lbs. each.
	Mln. £	Per lb. d.	Mln. £	Mln. £	Mln. lbs.	No.
1879.....	37,7	6 $\frac{1}{4}$	4,4	30,9	1,173,	56,410
'78.....	33,3	6 $\frac{1}{16}$	3,4	30,3	1,176,	56,560
'77.....	34,0	6 $\frac{1}{4}$	4,0	32,5	1,237,	59,510
'76.....	37,2	6 $\frac{1}{8}$	4,2	32,8	1,274,	61,250
'75.....	42,9	7 $\frac{1}{16}$	6,1	36,5	1,230,	59,160
'74.....	47,1	7 $\frac{1}{2}$	6,0	40,2	1,266,	60,870
'73.....	54,2	8 $\frac{3}{8}$	6,1	45,4	1,246,	59,910
1872.....	53,3	9 $\frac{5}{16}$	8,5	48,0	1,175,	56,510
'71.....	55,9	8	9,8	40,8	1,205,	57,950
'70.....	51,0	9 $\frac{5}{16}$	8,2	42,1	1,071,	51,520
'69.....	55,2	11 $\frac{1}{16}$	11,3	43,8	940,	45,140
'68.....	52,0	9 $\frac{3}{8}$	11,6	41,0	996,	47,890

“The following figures give, in a fairly trustworthy way, the average value per bale of colonial wool during the past fifteen years:—

[In 1,000's of bales.]

Year.	Import in Bales.	Average Value per Bale.	Total Value.	Year.	Import in Bales.	Average Value per Bale.	Total Value.
		£	Mln. £			£	Mln. £
1865.....	432,	23 $\frac{3}{4}$	10,2	1872.....	661,	26 $\frac{1}{2}$	17,5
'66.....	455,	24 $\frac{1}{2}$	11,1	'73.....	708,	24 $\frac{1}{4}$	17,1
'67.....	541,	20 $\frac{3}{4}$	11,2	'74.....	815,	23 $\frac{1}{4}$	18,9
'68.....	633,	18 $\frac{1}{2}$	11,7	'75.....	874,	22 $\frac{1}{2}$	19,4
'69.....	633,	15 $\frac{3}{4}$	9,9	'76.....	938,	18 $\frac{3}{4}$	17,6
'70.....	673,	16 $\frac{3}{4}$	11,2	'77.....	993,	18 $\frac{3}{4}$	18,6
Average per year 11 mln. £.				'78.....	951,	18 $\frac{3}{4}$	17,8
1871.....	693,	20 $\frac{1}{2}$	14,2	'79.....	1,002,	16 $\frac{1}{2}$	16,5
Year of transition.				Average per year 18 $\frac{1}{4}$ mln £.			

“The 1879 figures tell their own tale. We have not bracketed them with those of the preceding years, for they look exceptional, seem to stand apart, and may not improbably prove in future to be the low water mark of the ebbing movement in values, which has been in progress since 1872.

“The normal average value of colonial wool being about 21 $\frac{1}{2}$ %, 16 $\frac{1}{2}$ % falls short of it by 20% per cent. This is the actual average for 1879; the present value, based on the improved November prices, is about 19%, or rather less than 10 per cent. below the normal figure.

"*Supply and Consumption.*—The imports of wool into Europe from the British colonies, the River Plate States, and all other extra-European sources, have been as follows:—

[00's omitted.]

	Australasia.	Cape.	River Plate.	All other Sources.	Total Bales.
1879....	826,3	183,2	247,3	353,0	1,610,0
'78....	791,1	164,2	266,8	383,0	1,605,1
'77....	823,7	169,9	277,7	337,0	1,608,5
'76....	771,2	170,9	272,1	353,0	1,567,3
'75....	699,6	175,5	248,0	379,0	1,502,2
'74....	651,5	164,1	250,2	366,0	1,432,0
'73....	551,9	160,3	268,3	386,0	1,366,6
'72....	522,8	154,8	237,0	422,0	1,366,7

"The export of silver to the East, and the Council bills on India, &c., are shown by the following table:—

*Silver, 1879-67, Shipments to East, Bills Drawn by India Council on India, Imports of Silver into United Kingdom, Average Price in London, and Average Rate of Bank Discounts.* (Pixley and Abell's Circular.)

[0,000's omitted, thus 7,03 = 7,030,000£.]

Years.	Silver sent to East.	Bills Drawn by India Council.	Imports of Silver into United Kingdom.	Silver Coined in United Kingdom.	Average Price Standard Silver in London.	Average Bank Rate Discount.
	Mln. £	Mln. £	Mln. £	Mln. £	Per oz. d.	£ s. d.
1879 .....	7,03	14,70	10,52	0,55	51 $\frac{1}{4}$	2 10 —
'78 .....	5,84	13,98	11,45	0,61	52 $\frac{9}{16}$	3 15 8
'77 .....	17,00	8,64	21,62	0,42	54 $\frac{7}{8}$	2 18 —
'76 .....	10,91	11,51	13,56	0,22	52 $\frac{3}{4}$	2 12 1
1875 .....	3,71	10,84	9,50	0,59	56 $\frac{7}{8}$	3 4 8
'74 .....	7,09	13,28	11,80	0,89	58 $\frac{5}{16}$	3 13 10
'73 .....	2,50	13,94	12,30	1,08	59 $\frac{1}{4}$	4 15 10
'72 .....	5,65	10,31	11,14	1,24	60 $\frac{5}{16}$	4 2 —
'71 .....	3,71	8,44	16,52	0,70	60 $\frac{1}{2}$	2 17 8
1870 .....	1,58	6,98	10,65	0,33	60 $\frac{1}{2}$	3 2 —
'69 .....	2,36	3,70	6,73	0,07	60 $\frac{7}{16}$	3 4 2
'68 .....	1,63	4,14	7,71	0,30	60	2 1 11
'67 .....	0,64	5,61	8,02	0,19	60	2 10 9

"The export of silver has been 7, against under 6 million pounds in 1878, and the Council drafts 14 $\frac{3}{4}$ , against under 14 millions. The price of silver has receded, so that the average of 1879 is only 51 $\frac{1}{4}$ d.—the lowest in the table.

"In one of the appendices we draw attention to the new and valuable work, by Mr. Del Mar, on the 'History of the Precious Metals,' and we compile from it three tables of great interest.

"The undermentioned table relates to the reserves and condition of the four leading continental banks:—



*Leading Foreign Banks, 1874-80. Notes in Circulation and Bullion Reserve, being Summary of Appendix (passim) in Million £.*

[00,000's omitted, thus 115,8 = 115,800,000.]

Dates.	Bank of France.		Imperial Bank of Germany.		Bank of Austria.		Bank of Belgium.	
	Notes.	Bullion.	Notes.	Bullion.	Notes.	Bullion.	Notes.	Bullion.
	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £	Mln. £
1874.								
1st January.....	115,8	30,6	44,6	35,2	36,0	14,4	12,6	4,2
1st July .....	100,9	47,8	42,1	35,5	30,2	14,2	11,8	3,9
1875.								
1st January.....	105,9	52,8	41,9	30,3	30,1	13,9	13,1	4,7
1st July .....	96,9	62,7	43,3	29,8	29,1	13,8	12,9	4,9
1876.								
1st January .....	100,4	67,4	35,7	22,2	28,8	13,6	13,5	4,8
1st July .....	99,2	83,0	38,2	27,1	27,4	13,6	13,1	5,5
1877.								
1st January.....	107,5	86,4	37,9	25,1	29,6	13,6	14,5	4,6
1st July .....	100,1	90,1	37,1	27,5	27,4	13,6	13,7	4,2
1878.								
1st January.....	104,1	81,0	35,8	22,6	27,6	13,6	13,1	4,0
1st July .....	95,5	86,7	33,6	25,5	26,7	13,7	12,5	3,6
1879.								
1st January .....	93,9	81,7	32,0	23,7	29,1	15,6	12,4	3,9
1st March .....	89,5	82,7	28,8	27,0	27,9	15,8	11,9	4,2
1st July .....	91,0	90,1	36,5	26,9	29,2	15,5	12,1	4,2
1st October.....	86,0	84,6	37,3	24,4	31,9	16,8	12,0	3,9
1st November.....	87,7	81,1	37,1	26,0	34,0	16,9	12,3	4,0
1st December.....	90,2	79,1	35,3	27,7	31,7	16,2	12,3	4,3
1880.								
1st January .....	93,7	78,8	39,0	27,2	31,9	16,5	13,2	4,2

*Note.*—In *France*, through 1873, the market price of gold was 2 to 9½; average 7¾ per mille premium. In 1874, bank notes were at *par*; in 1875 the same; in 1876 the same; in 1877 specie payment was resumed.

In *Austria*, in 1873, the premium on gold was 8 per cent.; in 1874 it was 5½ per cent.; in 1875 it was 3½ per cent.; in 1876 it was 4½; in 1877 it was 5; in 1878 it was 2½ to *par*; and in 1879 it was *par*.

In *Italy*, in 1873, the premium on gold was 9 to 15 per cent.; in 1874 it was 11½ per cent.; in 1875 it was 8 per cent.; in 1876 it was 9 per cent.; in 1877 the same; in 1878 it was 9½; and in 1879 it was 11½ per cent.

In *Russia*, in 1873, the premium on silver was 12 per cent.; in 1874 it was 13 per cent.; in 1875 it was 15 per cent.; in 1876 it was 20 per cent.; in 1877 it was 39 per cent.; in 1878 it was 41; and in 1879 it was 40 per cent.

By way of showing the aggregate bullion and circulation of the four great continental banks, and also of the Bank of England, the following summary is given for 1st January, 1877-80 (million £):—

Banks.	Bullion.				Circulation.			
	1880.	1879.	1878.	1877.	1880.	1879.	1878.	1877.
Foreign banks .....	126,7	125,0	121,2	129,7	177,8	167,4	180,6	189,5
Bank of England.....	27,6	28,1	24,4	28,3	28,2	33,0	27,6	28,9

It is impossible not to remark the small variations per cent. both of the coin and notes of the four continental banks and also of the Bank of England; and it is equally impossible to avoid remembering that while the figures now before us exhibit so much steadiness, the variations which have taken place in the prices of commodities and securities have been wide and incessant. On the continent, as well as in this country, the development of the resources and facilities of banking, capital, and credit has become the controlling power in markets and dealings.

“The large importations of coin explain the lessened bullion in the Bank of France. The Russian paper money is still 40 per cent. below par.

“The following is the usual table of the percentages of prices at 1st January, 1880, and three former dates:—

*Wholesale Prices in London. Comparison of 1st January, 1880, with Four Former Dates, stating in Approximate Percentages the Degree in which the Prices at 1st January, 1880, were Higher or Lower than the Prices brought into the Comparison, see Appendix (B).*

Articles.	Higher	Lower	Higher	Lower	Higher	Lower	Higher	Lower
	Than 1st January, 1879.		Than 1st January, 1878.		Than 1st January, 1870.		Than 1st January, 1867.	
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Coffee .....	6	—	—	17	12	—	—	—
Sugar .....	8	—	7	—	9	—	33	—
Tea .....	27	—	27	—	38	—	30	—
Wheat.....	17	—	10	—	—	12	—	—
Butcher's meat .....	—	6	—	12	—	—	—	—
Indigo .....	25	—	21	—	32	—	60	—
Oils .....	—	—	—	4	—	16	—	25
Timber .....	—	10	—	22	4	—	7	—
Tallow.....	23	—	13	—	—	—	—	10
Leather .....	—	—	—	4	12	—	10	—
Copper .....	12	—	—	—	—	—	—	18
Iron.....	20	—	—	—	5	—	5	—
Lead .....	33	—	2	—	2	—	—	—
Tin .....	41	—	17	—	—	22	10	—
Cotton.....	24	—	6	—	—	40	—	70
Flax and hemp .....	4	—	9	—	—	14	—	30
Silk .....	20	—	—	6	—	23	—	32
Wool .....	10	—	—	—	—	16	—	17
Tobacco .....	15	—	—	4	8	—	—	12
Cotton cloth .....	17	—	—	6	—	50	—	55
Bank Note circu- lation of Great Britain .....	—	15	—	1	10	—	10	—
Total index number..	15	—	—	—	—	4	—	14

*Note.*—This table is deduced from the details given in Appendix (B), and is read thus:—The prices of 1st January, 1880, were, as regards coffee, 6 per cent. higher than the prices of 1st January, 1879; 17 per cent. higher than at 1st January, 1878; 12 per cent. higher than at 1st January, 1870; and the same as at 1st January, 1867. In some cases it is impossible to arrive satisfactorily at these percentages in consequence of the wideness of the quotations given in the prices current, and also in consequence of changes in classifying the qualities of the articles—changes necessarily incident to improvement of culture and manufacture.

The great increase in the bank note circulation at end of 1878, arose from the increase of Bank of England notes in the tills of banks, consequent on the discredit arising from the failure of the City of Glasgow and West of England Banks.

"The prospects for 1880 are decidedly favourable. There is a probability of a good season for all classes of farmers; and, so far that pestilential personage 'the promoter,' has not appeared, except in a very inferior degree."

The following is the Table of Contents of the "Commercial History and Review of 1879," with Appendix:—

Year 1879.—General Results of its Commercial and Financial History.

I.—Corn and Cattle Trades.

II.—Colonial and Tropical Produce.

III.—Wine Trade.

IV.—Raw Materials.

V.—Shipping and Freights.

VI.—Cotton Trade.

VII.—West Riding, &c., Woollen, Worsted, Flax, Iron, and other Trades.

VIII.—The Money Market in 1879.

#### APPENDIX.

A.—Wholesale Prices of Commodities in London and Manchester—Average of Six Years 1845-50;—Selected Dates, 1867-78;—and Monthly, 1879.

B.—Wholesale Prices, 1845-79—Proportionate Results.

C.—Bank of France.

D.—Banks of Germany, Belgium, and Austria.

E.—Foreign Exchanges, 1841-79.

F.—European Rates of Discount per cent. per annum, 1879.

G.—Prices of Grain—England and Wales—Calendar Years.

H.—Joint Stock Banks in London—(Group A)—Entirely Metropolitan.

I.—Cycles of Bad Seasons in the United Kingdom—Speculations concerning the Effect of Periods of Sun Spots on the Character of Harvests.

J.—The Agricultural Depression in England, 1876-79—Investigation of the Business Results of a Farm of 600 acres in the Eastern Counties.

K.—Production of Wheat and Indian Corn in the United States, 1863-78.

L.—United States, 1872-78—Land Sales and Movement of Population Westward—Failures 1866-72 and 1873-79—Census 1880.

M.—Production of the Precious Metals.

N.—Possible Railway Development at Home and Abroad in 1880.

O.—Strikes in the United Kingdom during the Ten Years 1870-79, and present Relations of Capital and Labour.

P.—Capital Raised and Proposed to be Raised for State, Municipal, and Industrial Purposes during the Nine Years 1871-79.

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## II.—*The Movement of the Population in Russia during the Years 1867-70.*

WE extract from the *Journal de St. Pétersbourg*, <sup>9th</sup>/<sub>21st</sub> March, 1880, the following contribution by M. Vesselovsky on the movement of population in Russia:—

“The Central Statistical Committee of the Ministry of the Interior have recently produced a series of tables relating to the movement of the population in European Russia during the year 1870.

“Exception may perhaps be taken to the length of time which has elapsed between the dates to which the figures really refer and the actual date of publication, more especially as statistics of more recent years have appeared for almost all the other European countries: but it would be unfair to attach any blame to the committee for this, as the fact must not be lost sight of, that to obtain reliable statistics of births, deaths, and marriages in Russia, many difficulties have to be overcome, and a vast amount of labour undertaken by a very small staff. Notwithstanding the delay however in compiling the returns, the work lately produced by MM. de Struve and Okhoothchinsky will no doubt be studied with great interest by our readers, and its intrinsic merit fully appreciated. The following comparative statement shows the movement of the population in the fifty governments belonging to European Russia (exclusive of Finland and the districts of the Vistula) for the four years ending 1870:—

	Births.	Deaths.	Marriages.
1867.....	3,201,340	2,299,165	639,741
'68.....	3,093,087	2,517,037	606,764
'69.....	3,178,970	2,450,362	646,549
'70.....	3,180,223	2,263,021	670,832
Average for the 4 years	3,163,405	2,382,396	640,971

“From this statement it will be seen that the natural growth of the population, through the excess of births over deaths, averaged for the four years 781,000, or 1·2 per cent. of the average population of these fifty governments during the same period, which amounted to 64,681,746 persons. Presuming that this rate of progression be maintained, the population of Russia would in 58 years be doubled, and this result effected in a shorter space of time than in most of the European countries, with the exception of Norway, doubling its population in 52 years, Denmark in 56, and Holland in 58; as in Sweden it would take 62 years, Germany 68, Belgium 79, Austria 95, Switzerland 99, Italy 141, and finally France 165 years.

“It may not be out of place here to mention that although the rapidly increasing growth of the population in Russia, or at any rate the considerable increase, annually shown of births as compared with deaths, is a well established fact, the same facilities



which exist in other countries for arriving at a perfectly accurate idea of the actual figures are not to be found in Russia, one reason being that up to the present no reliable census has yet been taken, the importance of which the committee have so frequently insisted upon; but still they are of opinion that the figures as stated by them are rather under than over estimated, and any errors that there might be would be of too trifling a nature to invalidate the general facts, but the reserve which we have expressed is nevertheless necessary as a caution against attributing anything beyond an approximate value to the calculations of which the total number of the population is one of the chief factors.

"It is in the south and west of Russia that there is the most rapid increase in the population by the excess of births, the average rate being 1·6 per cent. in the former and 2·4 per cent. in the latter district; it fluctuates between 1 and 1·6 per cent. in the two groups formed by the midland and eastern provinces, and is as low as 1·0 per cent. in the northern; but in two divisions of this latter group, viz., Esthonia and St. Petersburg, the deaths are in excess of births, being at the rate of 0·6 per cent. and 0·33 per cent. respectively.

"In the period comprised between 1867 and 1870 the proportional number of births to 1,000 persons living averaged 48·8, and the following table will show at a glance that this birth-rate is higher than in the other principal European countries:—

*Births to One Thousand Persons Living.*

Germany .....	40·0 to 42·8	Belgium .....	32·1
Hungary.....	41·7	Denmark .....	30·9
Austria .....	38·6	Switzerland .....	30·6
Spain .....	37·6	Sweden .....	30·5
Italy .....	37·1	Norway .....	30·4
Holland .....	35·6	France .....	25·8
England .....	35·4		

"The governments with the highest birth-rate are those of Astrakhan, 58·6 to 1,000 persons living, Orenburg 57·8, Perm 56·8, and Samara 56·6; it is over 50 in the nineteen governments of Orel, Penza, Toula, Kursk, Viatka, Smolensk, Riazan, Tchernigov, Ekaterinoslav, Taurida, Nijni-Novgorod, Don, Voronej, Simbirsk, Vladimir, Mohilev, Oufa, Poltava, and Kief; it fluctuates between 40 and 50 in the twenty governments of central Russia classed in a descending scale, viz., Saratov, Tambov, Volhynia, Kharkov, Moscow, Pskov, Minsk, Podolia, Vitebsk, Grodno, Kaluga, Vilna, Vologda, Kazan, Kostroma, Tver, Olonets, Cherson, Yaroslav, and Bessarabia; and classed in the same descending scale, it fluctuates between 35 and 40 in the governments of Novgorod, Kovno, Archangel, and St. Petersburg; and the governments showing the lowest birth-rate are the three Baltic provinces of Livonia, Esthonia, and Kurland, the average proportion per 1,000 declining to 33·4, 31·6, and 30·5 respectively.

"The average proportion per cent. of illegitimate to total births in Russia is 2·92, the proportion for the members of the orthodox Greek Church being 3·06, Roman Catholics 3·17, and Protestants 3·19, but for Jews and Mahomedans, it declines to 0·22 and 0·16 respectively. The low rate of illegitimacy in the last

two cases may be attributed either to imperfect registration, or to the fact that among the members of the Jewish race marriages are contracted at a very early age, and a great strictness of morality observed, and to the fact that among the Mahomedans polygamy is extensively practised.

"It will be seen then that the average number of illegitimate births is less in Russia than in other European countries: for example, in Holland, after deducting still births, the rate of illegitimacy is 3.49 per cent., in Switzerland 4.80, England 5.54, Italy 6.41, Hungary and Belgium 7.05, France 7.35, Norway 8.31, German Empire 8.71, Sweden 10.23, Denmark 11.05, and Austria 13.46.

"Comparing the average number of illegitimate children born in seventy of the more important towns on the one hand, with those born in the remaining towns and country districts on the other, we find that the proportion for the former is at the rate of 14.89 per cent., or nearly six times greater than that of the latter, viz., 2.37, and five times higher than the general average for the whole of European Russia.

"In addition to the fact of large towns exercising such an influence over the illegitimate birth-rate, there is another striking feature worthy of notice, which is, that the decrease in the rate is most conspicuous in travelling from north to south, the reason probably being that in the north marriages are contracted by no means at an early age, as the condition of the soil and the severity of the climate make it exceedingly difficult to obtain the means of existence; another reason may be, that the working classes of northern Russia are in the habit of leaving their homes periodically to seek abroad work and higher wages.

"The proportion of male to every 100 female births registered in Russia is 104.8, against 104 in England, 105 in Germany, Holland, Norway, Sweden, Denmark, France, Belgium, Switzerland, and Hungary; 106 in Austria, and 107 in Italy. Thus, with the exception of the two last-mentioned countries, the excess of male over female births is not greater in the western States than in Russia, but in the midland districts of the empire the proportion among the Jewish community is considerably above the average, rising to 128.9 per cent.; among the members of the orthodox Greek Church it is 104.3, Roman Catholics 104.8, Protestants 105.2, and Mahomedans 105.3.

"The death-rate is higher in Russia than in the majority of the European States, the mean annual mortality of the four years ending 1870 being 3.68 for every 100 persons living; the following table shows the different rates in the principal European countries:—

Annual Rate of Mortality per 100 Persons Living.		Annual Rate of Mortality per 100 Persons Living.	
Hungary .....	3.84	Prussia .....	2.74
Wurtemberg .....	3.28	Holland .....	2.49
Servia .....	3.15	Switzerland .....	2.40
Austria .....	3.15	France .....	2.40
Spain .....	3.12	Great Britain .....	2.22
Bavaria .....	3.10	Denmark .....	1.98
Italy .....	2.99	Sweden .....	1.93
Saxony .....	2.88	Norway .....	1.75

"The death-rate, subject to more complex influences than the birth-rate, does not exhibit the same regularity in the geographical

distribution. It is highest in the following sixteen governments (from 4·0 to 4·6 per cent. of the population):—Orel, Perm, Nijni-Novgorod, Smolensk, Moscow, Vladimir, Toula, Samara, Olonets, Viatka, Simbirsk, Orenburg, Tambov, Astrakhan, Penza, and Pskov. In the northern, western, and southern districts it fluctuates between 3 and 4 per cent.; these districts comprise the governments of St. Petersburg, Tver, Kazan, Kaluga, Oufa, Saratov, Yaroslav, Voronej, Riazan, Kursk, Kostroma, Tchernigov, Vologda, Poltava, Kharkov, Mohilev, Kovno, Novgorod, Kiev, Bessarabia, Esthonia, Volhynia, Ekaterinoslav, Taurida, and Vitebsk. It is lower than 3 per cent. in the extreme northern district of Archangel, the western provinces of Grodno, Minsk, and Vilna, and in Cherson, and Don, which are situated in the southern district; in Livonia and Kurland, two of the Baltic provinces, the death-rate fluctuates between 2·7 and 2·4 per cent.

“The number of deaths is more numerous in Russia in the spring and summer than in autumn and winter, whereas in central Europe, the death-rate is highest in winter and spring, and lowest in summer and autumn. Extremes of temperature here, as elsewhere, exert a considerable influence over mortality, especially excessive heat and sudden atmospheric changes. For example, taking Italy and Spain, during August and September, two of the hottest months of the year, and the Scandinavian countries during the spring, when the weather is subject to rapid changes of temperature and atmospheric pressure, there is an exceptionally high rate of mortality. In Russia the twenty-nine governments with the highest summer death-rate are the following, classed according to the degrees of temperature:—Perm, Viatka, Vologda, Orenburg, Kostroma, Astrakhan, Nijni-Novgorod, Simbirsk, Bessarabia, Yaroslav, Samara, Tambov, Vladimir, Saratov, Penza, Kazan, Oufa, Don, Taurida, Novgorod, Riazan, Voronej, Pskov, Moscow, Cherson, Archangel, Toula, Ekaterinoslav, and Orel. These twenty-nine governments are situated in the northern, eastern, southern, and midland districts, and the heat being greater in the east, it is there we find the highest death-rate. In the west, mortality is influenced less by the heat than by sudden changes of temperature, and the highest death-rate is to be observed in the spring, in the following governments:—Kurland, Kovno, St. Petersburg, Tver, Livonia, Poltava, Olonets, Smolensk, Kharkov, Kursk, Kaluga, and in winter in Podolia, Kiev, Mohilev, Minsk, Tchernigov, Grodno, Volhynia, Vitebsk, Vilna, and Esthonia.

“The high rate of mortality in Russia is in a great measure due to an exceptionally large number of deaths among infants under one year old; but there is more difficulty in arriving at the exact proportion of infantile deaths in this country than in others, it being almost impossible to obtain accurate information respecting the mortality of infants compared with that of all ages, and the caution already given against attributing anything more than an approximate value to the calculations must be repeated here, though at the same time it is as well to state that in every case the figures taken are nearly, if not quite correct, and any errors that may creep in will be of too trivial a character to in any way invalidate



the general facts. It appears then from calculations made, that in Russia for every 100 children born, 26·34, or more than a quarter, die in the first year of their existence, and this is a higher proportion than is to be found in the majority of the European countries, as the following statement will show:—

	Per Cent.		Per Cent.
Wurtemberg .....	32·95	Prussia .....	21·77
Bavaria .....	31·79	Switzerland .....	20·02
Saxony .....	27·80	Belgium .....	17·35
Austria .....	25·82	France .....	16·91
Italy .....	22·01	England .....	15·40

“The mean death-rate of children under one year old is 44 per cent. in the government of Perm; 40 in Nijni-Novgorod; it declines from 38 to 30 in Viatka, Vladimir, Moscow, Yaroslav, Simbirsck, Olonets, Tver, Orenburg, Kostroma, St. Petersburg, Saratov, Vologda, Novgorod, Orel, Samara, Toulá, Smolensk, Penza, and Kazan; from 29 to 20 per cent. in Pskov, Voronej, Archangel, Riazan, Oufa, Kaluga, Astrakhan, Tambov, Livonia, Kurland, Tchernigov, and Esthonia; from 19 to about 14 per cent. in Kharkov, Poltava, Koursk, Kovno, Mohilev, Taurida, Kiev, Vitelsk, Cherson, Grodno, Podolia, Bessarabia, Volhynia, Don, Minsk, and Ekaterinoslav; and it attains its minimum in the government of Vilna, 12 to 11·89 per cent.

“Comparing a statement of provinces classed in the order of infant mortality with a table of births, there is a want of coincidence between the statements, that is to say, the largest number of deaths in the first year of life does not correspond with the highest birth-rate; while on the other hand the geographical distribution of the infant mortality shows an almost equal proportion to the mortality of all ages. It is evident, therefore, that the causes of the former are identical with those of the latter, chief among which may be mentioned the climate, social condition of the people, and their mode of life. Differences of race combined with differences of religious denominations, also form an important element in determining the high or low rate of mortality. These differences are very considerable: for instance, among the members of the orthodox Greek Church the death-rate of infants during the first-year is 27·75 per cent., whereas it is only 21·18 among Protestants, 17·53 Mahomedans, 14·98 Jews, and 13·96 Roman Catholics. In large towns there is a preponderance of infant mortality over smaller towns and the provinces: in the former the proportion is 29·05 per cent. against 25·46 per cent. in the latter. As regards the number of marriages, Russia takes one of the first places in Europe. The average annual marriage rate, that is to say, persons married to 1,000 population, is 9·8. This proportion is only exceeded in Hungary, the rate being 10·5; the German Empire comes next with a proportion of 9·5 (Prussia 8·9, Saxony 9·38, Wurtemberg and Bavaria 9·2, &c.), Austria 8·7, England and Wales 8·4, Holland 8·2, France 8·0, Denmark 7·9, Switzerland and Italy 7·6, Belgium 7·5, Scotland 7·2, Norway 7·0, Sweden 6·6, and Ireland 5·1.

“The number of marriages fluctuates very considerably in the different districts of Russia, the proportion per 1,000 being as low



as 6·5 in St. Petersburg, and as high as 12·2 in Oufa. The greatest number are contracted in the governments of Oufa, Toula, Orel, Don, Podolia, Riazan, Astrakhan, Orenburg, Samara, Kursk and Voronej, the rate varying from 11 to 11·6; it is between 10 and 10·9 in Penza, Viatka, Kiev, Volhynia, Ekaterinoslav, Tambov, Kazan, Perm, Kharkov, Taurida, Simbirsk, Nijni-Novgorod, Mohilev, and Poltava; it is between 9·0 and 9·9 in Tchernigov, Smolensk, Kaluga, Vladimir, Minsk, Saratov, Vologda, Olonets, Bessarabia, Tver, and Grodno; between 8·1 and 8·8 in Kostroma, Vilna, Vitelsk, Cherson, Moscow, and Pskov; between 7 and 7·8 in Archangel, Yaroslav, Kovno, Esthonia, and Novgorod; and lastly, it fluctuates between 6·5 and 6·8 in Livonia, Kurland, and St. Petersburg. Marriages are contracted at an earlier age in Russia than in any other European country, two-fifths of the men and two-thirds of the women marrying under the age of 20.

“While in the countries of western Europe the proportion of men marrying under the age of 20 varies from 0·1 to 3·6 per cent., in Russia it is as high as 37·9. The proportion of females marrying under the age of 20 varies from 4·7 to 19·9 per cent. in other countries; in Russia it attains the high rate of 57·4. *Per contra*, for every 100 marriages registered in Russia, the proportion of men between the ages of 20 and 30 is 41·8, and women 33·2 per cent.; in the other European countries the corresponding rates fluctuate between 51·3 and 73 per cent. in the case of men, and 56·8 to 67·7 in the case of women.

“If we take a table of governments, classed according to the ages of the persons marrying, it appears that marriages of people in the same rank of life are contracted at an earlier age in the south than in the north; for example, in Archangel, Vologda, Novgorod, and Olets, the proportion of men marrying under the age of 20 varies from 14·2 to 18·2 per cent., and of women 21 to 25·1 per cent.

“We have already called attention to this fact above, and also to the cause to which it is to be attributed, viz., the inferior facilities enjoyed by the rural population in northern districts of supplying their wants and forming new establishments; but besides the conditions of material existence depending upon soil and climate, the variations which are found in the different provinces between the average ages of married persons are also largely due to the influence exercised by the composition of the population as regards race, religion, and agglomeration in large towns. The following table shows the importance of these last elements:—

*To every Hundred Men Married.*

	Proportion.			
	Under 20.	From 20 to 25.	From 25 to 30.	Over 30.
Orthodox Greek Church.....	40·9	30·6	9·6	18·9
Roman Catholics .....	8·5	30·2	23·9	37·4
Protestants .....	7·6	31·4	25·7	35·3
Jews .....	41·7	27·4	11·2	19·7
Mahomedans .....	15·8	40·2	16·5	27·5
Seventy-eight principal towns ..	11·1	29·2	21·3	48·4
Other towns and provinces.....	39·1	31·1	10·4	19·4

*To every Hundred Women Married.*

	Proportion.			
	Under 20.	From 20 to 25.	From 25 to 30.	Over 30.
Orthodox Greek Church.....	59·5	25·4	6·3	8·8
Roman Catholics .....	37·7	32·3	14·1	15·9
Protestants .....	27·8	36·2	18·2	17·8
Jews .....	59·8	21·9	7·9	10·4
Mahomedans .....	47·6	29·6	10·0	12·8
Seventy-eight principal towns..	43·0	27·8	13·4	15·8
Other towns and provinces.....	58·0	26·0	6·0	9·1

“It is in the midland and southern districts of Russia that the largest proportion of marriages among minors is found, especially in the governments of Voronej, Don, Kaluga, Nijni-Novgorod, Orel, Penza, Riazan, Samara, Tambov, and Toula, the percentage of men under 20 being from 51·7 to 65·1, and of women 66·6 to 81·4.

“The following table shows the civil condition of persons marrying in Russia and the other principal foreign countries:—

*Proportion to every Hundred Marriages Contracted between*

	Bachelors and		Widowers and	
	Spinsters.	Widows.	Spinsters.	Widows.
Russia .....	76·19	4·64	10·16	9·01
France .....	84·04	4·08	8·18	3·70
Italy .....	82·51	3·83	9·86	3·80
Belgium .....	82·71	5·11	8·64	3·54
England and Wales.....	81·65	4·44	8·60	5·31
Prussia* .....	79·36	5·35	10·80	3·60
Bavaria† .....	82·35	5·25	10·64	1·74
Austria .....	75·48	6·40	13·15	4·97
Holland‡ .....	79·37	4·52	10·94	4·84
Denmark§ .....	81·30	5·25	10·07	2·13
Sweden   .....	84·73	3·59	9·33	2·19
Norway .....	84·53	3·83	9·55	2·09
Spain .....	81·06	4·03	10·06	4·85
Greece .....	85·86	4·06	6·76	3·32
Roumania .....	84·96	3·02	6·21	5·81

\* Plus 0·32 per cent. between divorcés and spinsters; 0·10 per cent. divorcés and widows; 0·29 per cent. bachelors and divorcées; 0·15 per cent. widowers and divorcées; 0·03 per cent. divorced persons of both sexes.

† Plus 0·02 per cent. marriages of divorced persons of both sexes.

‡ „ 0·33 „ divorced persons.

§ „ 1·25 „ „

|| „ 0·16 „ „

“And with these particulars before us, we can produce the fol-

lowing table, after deducting marriages between divorced persons of both sexes :—

*To every Hundred Married Persons.*

	Men—Proportion of		Women—Proportion of	
	Bachelors.	Widowers.	Spinsters.	Widows.
Russia .....	80·83	19·17	86·35	13·65
France .....	88·12	11·88	92·22	7·78
Italy .....	86·34	13·66	92·37	7·63
Belgium .....	87·82	12·18	91·35	8·65
England and Wales.....	86·09	13·91	90·25	9·75
Prussia* .....	84·71	14·40	90·16	8·95
Bavaria† .....	87·60	12·38	92·99	6·99
Austria .....	81·88	18·12	88·63	11·37
Holland‡ .....	83·89	15·78	90·31	9·36
Denmark§ .....	86·55	12·20	91·37	7·38
Sweden   .....	88·32	11·52	94·06	5·78
Norway.....	88·36	11·64	94·08	5·92
Spain.....	85·09	14·91	91·12	8·88
Greece .....	89·92	10·08	92·62	7·38
Roumania .....	87·98	12·02	91·17	8·83

\*, †, ‡, §, ||, See notes to previous table.

“Comparing the above figures, it will be seen that there is a greater number of marriages contracted by widows and widowers in Russia than in any European country, the former representing an eighth and the latter a fifth of the number of persons of the respective sexes married.

“It would naturally seem that this fact should be explained by the high death-rate; but on the contrary, there is, as a rule, a want of coincidence between the classification of provinces by the magnitude of the death-rate, and that by the number of persons in a state of widowhood. There are not, however, sufficient data to pronounce definitely upon this question.

“As regards different sects, the proportion of marriages of widows and widowers is much higher among Roman Catholics than members of the orthodox Greek Church, but in the case of Protestants, it is lower for widows and considerably higher for widowers. Jews and Mahomedans show the greatest numbers, but this is probably owing to the imperfect registration of divorced persons.

*Proportion to every Hundred Marriages.*

	Men.		Women.	
	Bachelors.	Widowers.	Spinsters.	Widows.
Orthodox Greek Church.....	81·86	18·14	87·09	12·91
Roman Catholics .....	77·90	22·10	84·88	15·12
Protestants .....	80·34	19·66	89·54	10·46
Jews .....	74·04	25·96	79·89	20·11
Mahomedans .....	65·19	34·81	73·62	26·38

“The figures which we have briefly reviewed represent the average of the four years 1867-70, but it must be remembered that in two of these years, 1867 and 1868, the effects of exceptionally bad harvests were felt throughout the whole of the Russian empire; but taking the average for the whole period at 100, the births, marriages, and deaths in each year can be stated proportionally, and show the following percentages:—

	Births.	Marriages.	Deaths.
1867 .....	101'04	99'91	96'31
'68 .....	97'49	94'02	105'91
'69 .....	100'48	100'95	102'71
'70 .....	100'99	105'12	95'07

“Thus it will be seen that in the year 1867 there is a perceptible diminution in the number of marriages, only twenty-one out of forty-nine governments showing a higher proportion than the average; in 1868 the decrease is more pronounced, reaching 6 per cent., and extends almost throughout the whole of Russia, *i.e.*, in forty-one governments; it amounts to 37 per cent. in Archangel, more than 25 per cent. in Orenburg and Esthonia, beyond 20 per cent. in Novgorod and Mohilev, 15 per cent. in Pskov, Livonia, Kovno, St. Petersburg and Tchernigov, and 10 per cent. in Kaluga, Vilna, Tver, Cherson and Smolensk.

“For the same year the births are only above the average (for the four years ending 1870) in twelve governments out of forty-nine, whereas in 1867, 1869, and 1870 they are higher in thirty governments. The decrease in the number is most perceptible in 1868 in the governments of Archangel, Vologda, Voronej, Kaluga, Kostroma, Mohilev, Moscow, Novgorod, Olonets, Pskov, St. Petersburg, Smolensk, Taurida, and Yaroslav, where it represents on the average 5 per cent. Finally, the number of deaths in 1868 showed a considerable increase, which was almost universal throughout Russia, the only governments with a comparatively low rate of mortality being those of Volga, Razan, Simbirsk, Samara, Astrakhan, Don, Kurland, Vladimir, Orel, Riazan, Toula, and Tambov.

“It was only in 1870 that the marriages, births, and deaths resumed their ordinary level, and on the average the results of these four years were certainly less favourable than the normal rates.

“The statistics of the movement of the population, at least in their existing form, with the details required by scientific exigencies, are of recent origin in Russia; if they are still defective in several respects, allowance must be made for the special difficulties which have to be encountered in our country, of the enormous number of the population, its distribution over an immense territory, and the different conditions to which it is subject. Under these circumstances no one will fail to recognise the importance of the progress realised by the enlightened and persevering efforts of the Central Statistical Committee.”



III.—*Lloyd's Statistics of Marine Casualties for the Year 1879.*

IN the present number of the *Journal* the usual statistics of marine losses and casualties furnished by *Lloyd's* from the reports made to that corporation for the year 1879 appear, and the short introduction which has been customary for some years is appended.

*Lives Lost, so far as Reported, in both Sailing and Steam Vessels.*

	Annual Average.		1879.
	Thirteen Years, 1866-78.	Eight Years, 1872-79.	
	1,784	1,826	1,662

This table shows satisfactory figures.

*Crews reported saved or drowned* give the following figures:—

	Crews Reported Saved.			Crews Reported Drowned.		
	Annual Average.		1879.	Annual Average.		1879.
	Thirteen Years, 1866-78.	Seven Years, 1872-78.		Thirteen Years, 1866-78.	Seven Years, 1872-78.	
Sailing vessels ....	946	1,007	1,026	93	131	95
Steamers .....	67	89	119	8	14	8

*Both* these classes give satisfactory results for the year 1879.

The proportion of *collisions* to *general casualties* continues to increase, as shown in the following table:—

*Percentage of Collisions (only) to Total Casualties.*

	Averages for Different Series of Years.					1879.
	Nine Years, 1866-74.	Ten Years, 1866-75.	Eleven Years, 1866-76.	Twelve Years, 1866-77.	Thirteen Years, 1866-78.	
Sailing vessels....	16·76	16·95	17·28	17·44	17·57	20·58
Steamers .....	30·90	30·97	31·10	30·98	31·11	30·11

The *Collisions* to *sailing vessels* in 1879 numbered 2,060, or more than the average of the previous thirteen years by 174, or 9·23 per cent.; to *steamers* 1,001 in 1879, or 607 above the same average, equal to 64·91 per cent. of increase. Compared with the year 1878 alone, 1879 gives an increase of 15·08 per cent. for *sailing vessels*, and of 19·74 per cent. for *steamers*.

*General casualties* reported to *sailing vessels* in 1879 were 10,009,

or 788 more than in 1878, an increase of 8·55 per cent.; while those reported to *steamers* were 3,325, an increase of 734 or 28·33 per cent.

The *Répertoire Général* of the Bureau Veritas gives the number of *sea-going sailing vessels* existing in 1879 as 49,024, measuring 14,103,605 tons, showing a decrease of 500 vessels and 213,825 tons from 1878, equal to a reduction of 1·01 per cent. in vessels, and 1·49 per cent. in tonnage; of *steamers*, as 5,897 vessels, measuring 6,179,935 tons gross, or an increase of 435 vessels, equal to 7·96 per cent., and in gross tonnage of 584,760 tons, equal to 10·45 per cent.

The foregoing figures seem to indicate that *sailing vessels* are smaller in average capacity as well as fewer in number, but that *steamers* are largely increasing in both.

From an interesting statement issued by the committee of *Lloyd's Register of Shipping*, it appears that while the number of *steamers* returned as "lost, broken up, &c.," during 1879, was only 151, measuring 130,500 tons, the *new steamers* classed by the Society during that year were 331, measuring 451,130 tons; 821 *sailing vessels* are returned as "lost, broken up, &c.," measuring 189,353 tons, while only 170 new *sailing vessels* were classed by the Society during the year, measuring 70,208 tons.

*Serious casualties* give the following percentages upon the annual totals:—

*Percentage of Serious Casualties upon Annual Totals.*

	Average of Thirteen Years, 1866-78.	Average of Seven Years, 1872-78.	1879.
<i>Sailing Vessels—</i>			
In collision .....	17·57	18·54	20·58
Stranded .....	26·67	25·39	25·79
Leaky .....	10·77	10·75	9·76
Other casualties.....	44·99	45·32	43·87
	100·00	100·00	100·00
<i>Steamers—</i>			
In collision .....	31·11	30·25	30·11
Stranded .....	25·75	25·57	26·08
Leaky .....	2·41	2·29	1·92
Other casualties.....	40·73	41·89	41·89
	100·00	100·00	100·00

*Missing vessels*, or vessels believed to have been lost with all hands, continue to show a diminution, which may not improbably be to some extent the result of the attention of late years directed to the proper character of the vessels, their loading, and equipment. In 1879 the numbers were 65 *sailing vessels*, and 6 *steamers*, while the averages for *thirteen previous years* were 86 *sailing vessels*, and 9 *steamers*.

The *results* of casualties reported were, so far as ascertained, as under:—

	Results—Percentage on Annual Totals.		
	Average of Thirteen Years, 1866-78.	Average of Seven Years, 1872-78.	1879.
<i>Sailing Vessels—</i>			
Total or constructive loss, or } great damage .....	31·23	28·33	28·96
Minor damage .....	46·59	49·97	46·81
Not damaged or results unknown	22·18	21·70	24·23
	100·00	100·00	100·00
<i>Steamers—</i>			
Total or constructive loss, or } great damage .....	15·66	13·77	11·14
Minor damage .....	43·04	47·54	47·23
Not damaged or results unknown	41·30	38·69	41·63
	100·00	100·00	100·00

Vessels reported *burnt or on fire*, show satisfactory figures, when the very large increase in the number of *steamers* is remembered, the numbers being :—

Burnt or on Fire.	Average of Thirteen Years, 1866-78.	Average of Seven Years, 1872-78.	1879.
Sailing vessels.....	141	132	116
Steamers .....	49	59	73
	190	191	189

The proportion of casualties reported to Lloyd's to the number of sea-going vessels existing as given in the *Répertoire Général*, appears as under :—

	Percentage of Reported Casualties to Sea-going Vessels Existing.								1879.
	1872.	1873.	1874.	1875.	1876.	1877.	1878.	Mean of Seven Years.	
Sailing vessels....	20·51	19·77	19·73	18·81	18·45	21·74	18·62	19·66	20·42
Steamers .....	55·32	47·55	46·97	46·12	44·98	46·06	47·44	47·78	56·38

The above indicates a very considerable increase in the *proportion* of casualties to *steamers*, and an excess also in the case of *sailing vessels*, during 1879. Underwriting experience—speaking generally—will be found, we believe, to follow the respective figures of percentage somewhat more closely than is usually imagined in its pecuniary results; *if so*, surely we cannot be wrong in again drawing the attention of our readers to the very great benefit which would accrue from the establishment of an “*Institute of British Underwriters.*”

1.—A Table showing the Number of Wrecks and Casualties to Sailing Vessels and Steamers Compared with the Average Number and

Sailing Vessels.	First Half-Year.				Second Half-Year.				Annual Total.			
	1879.		Average 13 previous Years.		1879.		Average 13 previous Years.		1879.		Average 13 previous Years.	
	Num- ber.	Per Cent.	Num- ber.	Per Cent.	Num- ber.	Per Cent.	Num- ber.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
1. Missing .....	49	1'02	57	1'17	16	0'31	28	0'48	65	0'65	86	0'80
2. Abandoned—												
Recovered ....	27	0'56	31	0'64	39	0'75	39	0'66	66	0'66	70	0'65
Lost .....	134	2'80	117	2'38	106	2'03	130	2'23	240	2'40	247	2'30
Total .....	161	3'36	148	3'02	145	2'78	169	2'89	306	3'06	317	2'95
3. Collision—												
Not damaged	229	4'77	227	4'65	331	6'35	295	5'05	560	5'59	522	4'87
Damaged .....	592	12'34	562	11'52	730	14'01	647	11'06	1,322	13'21	1,209	11'27
Sunk .....	79	1'65	73	1'49	99	1'90	81	1'38	178	1'78	154	1'43
Total .....	900	18'76	862	17'66	1,160	22'26	1,023	17'49	2,060	20'58	1,886	17'57
4. Sinking from causes other than collision .....	111	2'31	149	3'03	163	3'13	172	2'95	274	2'74	321	2'99
5. Stranded—												
Got off .....	672	14'01	708	14'50	742	14'24	771	13'21	1,414	14'13	1,481	13'80
Not got off ....	430	8'96	476	9'75	526	10'09	625	10'69	956	9'55	1,102	10'26
Subsequent fate not reported } .....	80	1'67	116	2'37	131	2'51	164	2'81	211	2'11	280	2'61
Total .....	1,182	24'64	1,300	26'62	1,399	26'84	1,562	26'71	2,581	25'79	2,863	26'67
6. Capture .....	—	—	3	0'07	—	—	8	0'14	—	—	12	0'11
7. Piracy .....	1	0'02	1	0'03	—	—	2	0'03	1	0'01	3	0'03
8. Burnt or on fire	63	1'31	66	1'35	53	1'02	76	1'29	116	1'16	141	1'32
9. Dismasted or disabled .....	208	4'34	192	3'94	194	3'72	284	4'85	402	4'01	476	4'44
10. Jettison of cargo under deck .....	126	2'63	92	1'88	90	1'73	91	1'55	216	2'16	183	1'70
11. Jettison of deck- load or washed overboard .....	56	1'17	55	1'13	79	1'52	122	2'09	135	1'34	177	1'65
12. Leaky .....	448	9'34	506	10'36	529	10'15	650	11'11	977	9'76	1,155	10'77
13. Loss of anchors or chains .....	137	2'85	237	4'85	170	3'26	270	4'62	307	3'07	507	4'72
14. Machinery damaged, &c. }	—	—	—	—	—	—	—	—	—	—	—	—
15. Mutiny, sickness, casualty to crew, or refus- ing duty .....	110	2'29	119	2'43	85	1'63	118	2'02	195	1'95	237	2'21
16. Ship damaged, &c.	1,240	25'84	1,086	22'23	1,110	21'30	1,255	21'45	2,350	23'48	2,340	21'80
17. Water-logged....	6	0'12	10	0'21	18	0'35	19	0'32	24	0'24	29	0'27
Number of casualts.	4,798	—	4,883	—	5,211	—	5,850	—	10,009	—	10,733	—
Number of vessels	4,485	—	4,545	—	4,977	—	5,467	—	9,462	—	10,012	—





2.—A Table showing the Results of Wrecks and Casualties to Ship and to Cargo, with Salvage during the Year 1879, and the respective Percentages thereon, Compared

Sailing Vessels.	First Half-Year.				Second Half-Year.				Annual Total.			
	1879.		Average 13 previous Years.		1879.		Average 13 previous Years.		1879.		Average 13 previous Years.	
	Num- ber.	Per Cent.	Num- ber.	Per Cent.	Num- ber.	Per Cent.	Num- ber.	Per Cent.	Number.	Per Cent.	Num- ber.	Per Cent.
<i>Results to Ship—</i>												
Total loss .....	802	17'88	836	18'39	887	17'82	1,021	18'67	1,689	17'85	1,857	18'55
Constructive loss .....	68	1'52	87	1'91	76	1'53	79	1'45	144	1'50	166	1'65
Great damage.....	417	9'30	483	10'62	492	9'89	621	11'37	909	9'61	1,104	11'03
Minor damage ....	2,157	48'09	2,147	47'25	2,271	45'63	2,516	46'02	4,428	46'80	4,663	46'58
Raised aftersink- ing.....	19	0'42	22	0'49	26	0'52	19	0'34	45	0'48	41	0'41
Not damaged or results un- known .....	1,022	22'79	969	21'33	1,225	24'61	1,210	22'14	2,247	23'75	2,180	21'77
Total .....	4,485	—	4,545	—	4,977	—	5,467	—	9,462	—	10,012	—
<i>Results to Cargo so far as reported—</i>												
All lost .....	364	8'12	468	10'31	357	7'17	496	9'07	721	7'62	964	9'63
Part lost .....	255	5'69	239	5'25	243	4'88	300	5'48	498	5'26	539	5'38
All saved .....	15	0'33	18	0'39	13	0'26	14	0'26	28	0'29	32	0'32
Forwarded .....	18	0'40	13	0'29	16	0'32	9	0'16	34	0'36	22	0'22
Heated .....	7	0'16	10	0'21	5	0'10	9	0'16	12	0'13	19	0'19
Shifted.....	49	1'09	60	1'32	63	1'27	70	1'26	112	1'11	130	1'29
Otherwise damaged	146	3'26	74	1'63	108	2'17	74	1'35	254	2'68	148	1'48
Salvage Services ....	405	9'04	437	9'63	440	8'93	492	9'00	845	8'97	932	9'31
<i>Lives—</i>												
Crews saved .....	488	10'88	433	9'53	538	10'81	513	9'38	1,026	10'84	946	9'45
Crews drowned ....	68	1'52	51	1'12	27	0'54	43	0'78	95	1'00	93	0'93
Lives lost so far as reported (in both ships and steamers) ....	1,029	—	944	—	633	—	840	—	1,662	—	1,784	—

*Services, Crews Saved or Drowned and Lives Lost, so far as reported in "Lloyd's List," with the Average Number and Percentages for the Thirteen Previous Years.*

First Half-Year.				Second Half-Year.				Annual Total.				Steamers.
1879.		Average 13 previous Years.		1879.		Average 13 previous Years.		1879.		Average 13 previous Years.		
Num- ber.	Per Cent.	Num- ber.	Per Cent.	Num- ber.	Per Cent.	Num- ber.	Per Cent.	Num- ber.	Per Cent.	Num- ber.	Per Cent.	
88	5'77	67	7'74	103	6'03	84	8'19	191	5'91	150	7'99	<i>Results to Ship—</i>
1	0'07	5	0'52	—	—	4	0'35	1	0'03	8	0'43	Total loss
68	4'46	59	6'91	100	5'85	77	7'52	168	5'20	136	7'24	Constructive loss
756	49'61	382	44'39	771	45'11	428	41'91	1,527	47'23	810	43'04	Great damage
14	0'92	6	0'71	7	0'41	8	0'80	21	0'65	14	0'76	Minor damage
597	39'17	342	39'73	728	42'60	421	41'23	1,325	40'98	763	40'54	Raised after sinking
												{ Not damaged or results unknown
1,524	—	861	—	1,709	—	1022	—	3,233	—	1,883	—	Total
												<i>Results to Cargo so far as reported—</i>
38	2'49	27	3'09	36	2'11	31	3'02	74	2'29	57	3'05	All lost
94	6'17	37	4'31	78	4'56	44	4'31	172	5'32	81	4'31	Part lost
—	—	1	0'16	1	0'06	1	0'11	1	0'03	2	0'13	All saved
—	—	1	0'12	1	0'06	1	0'09	1	0'03	2	0'10	Forwarded
—	—	1	0'13	2	0'12	1	0'09	2	0'06	2	0'11	Heated
19	1'25	11	1'27	24	1'40	16	1'59	43	1'33	27	1'44	Shifted
43	2'82	20	2'30	62	3'63	25	2'42	105	3'25	45	2'37	Otherwise damaged
164	10'76	71	8'25	153	8'95	75	7'31	317	9'80	144	7'66	Salvage Services
												<i>Lives—</i>
56	3'67	32	3'73	63	3'69	35	3'43	119	3'37	67	3'57	Crews saved
6	0'39	5	0'60	2	0'12	3	0'25	8	0'25	8	0'40	Crews drowned
—	—	—	—	—	—	—	—	—	—	—	—	{ Lives lost so far as reported (in both ships and steamers)

3.—A Table showing the Number of Wrecks and Casualties to Sailing Vessels reported Compared with the Average Number and Percentages

Sailing Vessels.	First Quarter.				Second Quarter.			
	1879.		Average Thirteen previous Years.		1879.		Average Thirteen previous Years.	
	Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.
1. Missing .....	27	0·91	26	0·86	22	1·21	31	1·72
2. Abandoned—								
Recovered.....	15	0·50	20	0·63	12	0·66	11	0·64
Lost .....	79	2·66	71	2·30	55	3·02	45	2·54
Total .....	94	3·16	91	2·93	67	3·68	57	3·18
3. Collision—								
Not damaged .....	136	4·57	136	4·41	93	5·11	91	5·07
Damaged .....	331	11·11	351	11·33	261	14·34	212	11·84
Sunk .....	40	1·34	43	1·39	39	2·14	30	1·67
Total .....	507	17·02	530	17·13	393	21·59	332	18·58
4. Sinking from causes } other than collision }	57	1·91	83	2·68	54	2·97	66	3·68
5. Stranded—								
Got off .....	389	13·06	408	13·17	283	15·55	300	16·78
Not got off .....	278	9·33	303	9·79	152	8·35	173	9·70
Subsequent fate not } reported .....	51	1·71	76	2·48	29	1·59	39	2·19
Total .....	718	24·11	787	25·44	464	25·49	513	28·67
6. Capture .....	—	—	2	0·05	—	—	2	0·10
7. Piracy .....	—	—	1	0·03	1	0·06	1	0·03
8. Burnt or on fire .....	34	1·14	36	1·17	29	1·59	30	1·65
9. Dismasted or disabled....	130	4·37	113	3·66	78	4·29	79	4·42
10. Jettison of cargo } under deck .....	87	2·92	60	1·94	39	2·14	32	1·79
11. Jettison of deckload or } washed overboard.... }	34	1·14	34	1·10	22	1·21	21	1·17
12. Leaky .....	270	9·07	318	10·28	178	9·78	188	10·48
13. Loss of anchors or } chains .....	93	3·12	188	6·08	44	2·42	49	2·72
14. Mutiny, sickness, } casualty to crew or } refusing duty .....	74	2·48	72	2·33	36	1·98	46	2·59
15. Ship damaged, loss of } bulwarks, sails, &c. }	852	28·61	747	24·13	388	21·32	339	18·95
16. Water-logged .....	1	0·03	5	0·17	5	0·27	5	0·27
Number of casualties .....	2,978	—	3,094	—	1,820	—	1,789	—
Number of vessels.....	2,749	—	2,853	—	1,736	—	1,692	—



in "Lloyd's List," during the Four Quarters of 1879, and the respective Percentages thereon, for the same period of the Thirteen Previous Years.

Third Quarter.				Fourth Quarter.				Sailing Vessels.
1879.		Average Thirteen previous Years.		1879.		Average Thirteen previous Years.		
Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.	
12	0·60	15	0·76	4	0·12	14	0·35	1. <i>Missing</i>
16	0·80	11	0·59	23	0·72	27	0·69	2. <i>Abandoned—</i>
29	1·45	35	1·81	77	2·39	95	2·43	Recovered
45	2·25	46	2·40	100	3·11	123	3·12	Lost
134	6·71	113	5·89	197	6·13	182	4·63	Total
286	14·33	243	12·63	444	13·81	403	10·29	3. <i>Collision—</i>
49	2·46	32	1·64	50	1·55	50	1·26	Not damaged
469	23·50	388	20·16	691	21·49	635	16·18	Damaged
61	3·06	67	3·49	102	3·17	105	2·68	Sunk
300	15·03	290	15·06	442	13·75	483	12·31	Total
159	7·97	185	9·62	367	11·42	440	11·22	4. Sinking from causes
30	1·50	46	2·38	101	3·14	118	3·01	other than collision
489	24·50	521	27·06	910	28·31	1,041	26·54	5. <i>Stranded—</i>
—	—	3	0·16	—	—	5	0·13	Got off
—	—	1	0·07	—	—	1	0·01	Not got off
19	0·95	33	1·69	34	1·06	43	1·10	{ Subsequent fate not re-
84	4·21	100	5·18	110	3·42	184	4·69	ported
32	1·60	30	1·55	58	1·80	61	1·55	Total
23	1·15	22	1·14	56	1·74	100	2·55	6. Capture
200	10·02	245	12·71	329	10·23	405	10·32	7. Piracy
71	3·56	47	2·46	99	3·08	223	5·69	8. Burnt or on fire
43	2·16	49	2·54	42	1·31	96	1·77	9. Dismasted or disabled
442	22·14	353	18·33	668	20·78	902	22·99	10. Jettison of cargo
6	0·30	6	0·30	12	0·37	13	0·33	under deck
1,996	—	1,926	—	3,215	—	3,924	—	11. Jettison of deckload or
1,930	—	1,831	—	3,047	—	3,635	—	washed overboard
								12. Leaky
								13. Loss of anchors or
								chains
								14. Mutiny, sickness,
								casualty to crew or
								refusing duty
								15. Ship damaged, loss of
								bulwarks, sails, &c.
								16. Water-logged
								</

4.—A Table showing the Number of Wrecks and Casualties to Steamers reported in  
Compared with the Average Number and Percentages

Steamers.	First Quarter.				Second Quarter.			
	1879.		Average Thirteen previous Years.		1879.		Average Thirteen previous Years.	
	Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.
1. <i>Missing</i> .....	3	0·31	4	0·85	3	0·46	2	0·44
2. <i>Abandoned</i> —								
Recovered .....	—	—	—	—	—	—	—	—
Lost .....	2	0·21	1	0·25	1	0·15	1	0·22
Total .....	2	0·21	2	0·33	1	0·15	1	0·30
3. <i>Collision</i> —								
Not damaged .....	111	11·68	77	14·94	113	17·36	62	16·14
Damaged .....	136	14·32	66	12·79	84	12·90	47	12·26
Sunk .....	7	0·74	6	1·24	9	1·38	4	1·09
Total .....	254	26·74	149	28·97	206	31·64	113	29·49
4. Sinking from causes } other than collision }	16	1·68	11	2·07	14	2·15	8	2·21
5. <i>Stranded</i> —								
Got off .....	208	21·89	100	19·49	139	21·35	89	23·35
Not got off .....	28	2·95	19	3·70	15	2·31	15	3·86
Subsequent fate not } reported }	4	0·42	6	1·26	1	0·15	4	1·01
Total .....	240	25·26	125	24·45	155	23·81	108	28·22
6. Capture .....	—	—	—	—	—	—	—	—
7. Piracy .....	—	—	—	—	—	—	—	—
8. Burnt or on fire .....	19	2·00	11	2·23	16	2·46	13	3·28
9. Dismasted or disabled...	6	0·63	5	0·96	3	0·46	3	0·69
10. Jettison of cargo } under deck .....	32	3·37	8	1·54	23	3·53	8	2·09
11. Jettison of deckload or } washed overboard...	10	1·05	5	0·87	3	0·46	2	0·42
12. Leaky .....	25	2·63	13	2·53	12	1·84	11	2·80
13. Loss of anchors or } chains .....	8	0·84	8	1·53	7	1·08	3	0·75
14. Machinery damaged } or short of coals ...	156	16·42	98	19·05	120	18·43	79	20·61
15. Mutiny, sickness, } casualty to crew, or } refusing duty .....	8	0·84	5	1·05	6	0·92	4	1·15
16. Ship damaged, loss of } sails, bulwarks, &c. }	171	18·00	70	13·56	82	12·60	28	7·45
17. Water-logged .....	—	—	—	—	—	—	—	—
Number of casualties.....	950	—	512	—	651	—	382	—
Number of steamers .....	905	—	495	—	619	—	366	—

"*Lloyd's List*," during the Four Quarters of 1879, and the respective Percentages thereon, for the same period of the Thirteen Previous Years.

Third Quarter.				Fourth Quarter.				Steamers.
1879.		Average Thirteen Previous Years.		1879.		Average Thirteen Previous Years.		
Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.	Number.	Per-centage.	
—	—	—	—	—	—	2	0'36	1. <i>Missing</i>
—	—	—	—	—	—	—	—	2. <i>Abandoned—</i>
—	—	1	0'17	1	0'09	1	0'19	Recovered
—	—	1	0'19	1	0'09	2	0'24	Lost
116	18'10	78	19'13	161	14'86	108	16'79	Total
89	13'88	60	14'64	155	14'31	83	12'92	3. <i>Collision—</i>
9	1'40	7	1'62	11	1'02	9	1'35	Not damaged
214	33'38	145	35'39	327	30'19	201	31'06	Damaged
10	1'56	9	2'20	25	2'31	15	2'30	Sunk
155	24'18	88	21'41	256	23'64	126	19'57	Total
14	2'18	17	4'14	37	3'41	28	4'39	4. Sinking from causes
2	0'31	3	0'75	8	0'74	6	1'01	other than collision
171	26'67	108	26'30	301	27'79	161	24'97	5. <i>Stranded—</i>
—	—	—	—	—	—	1	0'11	Got off
—	—	—	—	—	—	—	—	Not got off
11	1'72	12	2'97	27	2'49	13	1'98	Subsequent fate not re-
4	0'62	3	0'72	8	0'74	8	1'29	ported
11	1'72	7	1'73	19	1'75	8	1'24	Total
6	0'94	2	0'41	5	0'46	9	1'48	6. Capture
9	1'40	8	2'03	18	1'66	15	2'33	7. Piracy
7	1'09	2	0'60	18	1'66	8	1'27	8. Burnt or on fire
133	20'75	84	20'57	150	13'85	110	17'04	9. Dismasted or disabled
7	1'09	5	1'22	4	0'37	5	0'76	10. Jettison of cargo
58	9'05	23	5'53	180	16'62	88	13'56	under deck
—	—	—	—	—	—	—	—	11. Jettison of deckload or
641	—	409	—	1,083	—	646	—	washed overboard
633	—	396	—	1,076	—	625	—	12. Leaky
								13. Loss of anchors or
								chains
								14. Machinery damaged
								or short of coals
								15. Mutiny, sickness,
								casualty to crew, or
								refusing duty
								16. Ship damaged, loss of
								sails, bulwarks, &c.
								17. Water-logged
								Number of casualties
								Number of steamers

5.—A Table showing the Results of Wrecks and Casualties to Ship and to Cargo, with List," during the Four Quarters of 1879, and the respective Percentages thereon, Previous Years.

	Sailing Vessels.							
	First Quarter.				Second Quarter.			
	1879.		Average Thirteen previous Years.		1879.		Average Thirteen previous Years.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
<i>Results to Ship—</i>								
Total loss .....	480	17'46	505	17'69	322	18'55	331	19'58
Constructive loss .....	41	1'49	51	1'78	27	1'56	36	2'14
Great damage.....	246	8'95	307	10'75	171	9'85	176	10'40
Minor damage .....	1,353	49'22	1,412	49'49	804	46'31	736	43'48
Raised after sinking .....	10	0'36	13	0'44	9	0'52	10	0'58
Not damaged or results } unknown.....	619	22'52	566	19'85	403	23'21	403	23'82
Total .....	2,749	—	2,853	—	1,736	—	1,692	—
<i>Results to Cargo so far as reported—</i>								
All lost .....	234	8'51	296	10'39	130	7'49	172	10'16
Part lost .....	151	5'50	150	5'27	104	5'93	87	5'17
All saved.....	9	0'33	12	0'43	6	0'35	6	0'33
Forwarded .....	12	0'44	8	0'28	6	0'35	5	0'30
Heated .....	3	0'11	7	0'24	4	0'23	3	0'15
Shifted .....	29	1'06	42	1'46	20	1'15	18	1'08
Otherwise damaged .....	73	2'66	44	1'56	73	4'21	30	1'76
Salvage services .....	235	8'55	288	10'11	170	9'22	149	8'81
<i>Lives—</i>								
Crews saved .....	302	10'99	270	9'46	186	10'71	163	9'66
Crews drowned .....	41	1'49	29	1'00	27	1'56	22	1'30
Lives lost so far as reported (in both ships and steamers).....	705	—	442	—	324	—	502	—



*Salvage Services, Crews Saved or Drowned and Lives Lost, so far as reported in "Lloyd's Compared with the Average Number and Percentages for the same period of the Thirteen*

Sailing Vessels.								
Third Quarter.				Fourth Quarter.				
1879.		Average Thirteen previous Years.		1879.		Average Thirteen previous Years.		
Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	
294	15'23	327	17'87	593	19'46	694	19'08	Results to Ship—
44	2'28	37	2'00	32	1'05	43	1'17	Total loss
184	9'53	211	11'55	308	10'11	410	11'27	Constructive loss
904	46'84	804	43'90	1,367	44'86	1,712	47'10	Great damage
12	0'62	9	0'49	14	0'46	10	0'27	Minor damage
492	25'49	443	24'19	733	24'06	767	21'11	Raised after sinking
								{ Not damaged or results unknown
1,930	—	1,831	—	3,047	—	3,635	—	Total
								Results to Cargo so far as reported—
128	6'63	159	8'67	239	7'84	337	9'27	All lost
80	4'15	86	4'69	163	5'35	214	5'88	Part lost
5	0'26	5	0'28	8	0'26	9	0'25	All saved
11	0'57	4	0'24	5	0'16	4	0'12	Forwarded
2	0'10	4	0'22	3	0'10	5	0'11	Heated
18	0'93	16	0'89	45	1'48	53	1'47	Shifted
56	2'90	33	1'79	52	1'71	40	1'11	Otherwise damaged
166	8'60	160	8'75	274	8'99	332	9'13	Salvage services
								Lives—
191	9'90	160	8'74	347	11'39	353	9'70	Crews saved
16	0'83	13	0'70	11	0'36	30	0'82	Crews drowned
349	—	270	—	284	—	570	—	{ Lives lost so far as reported (in both ships and steamers)

6.—A Table showing the Results of Wrecks and Casualties to Ship and to Cargo, with List," during the Four Quarters of 1879, and the respective Percentages thereon, Previous Years.

	Steamers.							
	First Quarter.				Second Quarter.			
	1879.		Average Thirteen previous Years.		1879.		Average Thirteen previous Years.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
<i>Results to Ship—</i>								
Total loss .....	51	5'64	39	7'99	37	5'98	27	7'42
Constructive loss .....	1	0'11	3	0'54	—	—	2	0'48
Great damage.....	42	4'64	33	6'74	26	4'20	26	7'13
Minor damage .....	459	50'72	226	45'72	297	47'98	156	42'59
Raised after sinking .....	8	0'88	3	0'61	6	0'97	3	0'86
Not damaged or results } unknown.....	344	38'01	190	38'40	253	40'87	152	41'52
Total .....	905	—	495	—	619	—	366	—
<i>Results to Cargo so far as reported—</i>								
All lost .....	24	2'65	17	3'37	14	2'26	10	2'71
Part lost .....	54	5'97	19	3'87	30	6'46	18	4'90
All saved.....	—	—	1	0'17	—	—	1	0'15
Forwarded .....	—	—	1	0'12	—	—	—	—
Heated .....	—	—	1	0'16	—	—	—	—
Shifted .....	14	1'55	8	1'72	5	0'81	2	0'65
Otherwise damaged .....	25	2'76	11	2'22	18	2'91	9	2'42
Salvage services .....	87	9'61	37	7'43	77	12'44	34	9'35
<i>Lives—</i>								
Crews saved .....	32	3'53	19	3'82	24	3'88	13	3'59
Crews drowned .....	3	0'33	4	0'82	3	0'48	1	0'29
Lives lost so far as reported in both ships and steamers (see Sailing Vessels, <i>supra</i> ) ....	—	—	—	—	—	—	—	—

*Salvage Services, Crews Saved or Drowned and Lives Lost, so far as reported in "Lloyd's Compared with the Average Number and Percentages for the same period of the Thirteen*

Steamers.								
Third Quarter.				Fourth Quarter.				
1879.		Average Thirteen previous Years.		1879.		Average Thirteen previous Years.		
Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	
30	4'74	31	7'95	73	6'78	52	8'34	<i>Results to Ship—</i>
—	—	2	0'45	—	—	2	0'30	Total loss
32	5'06	31	7'80	68	6'32	46	7'33	Constructive loss
287	45'34	161	40'74	484	44'98	267	42'64	Great damage
3	0'47	3	0'76	4	0'37	5	0'82	Minor damage
281	44'39	168	42'30	447	41'54	253	40'56	Raised after sinking
								{ Not damaged or results unknown
633	—	396	—	1,076	—	625	—	Total
								<i>Results to Cargo so far as reported—</i>
13	2'05	11	2'85	23	2'14	18	2'95	All lost
34	5'37	16	4'15	44	4'09	28	4'42	Part lost
—	—	—	—	1	0'09	1	0'11	All saved
1	0'16	1	0'14	—	—	—	—	Forwarded
2	0'32	—	—	—	—	1	0'10	Heated
3	0'47	3	0'70	21	1'95	13	2'15	Shifted
22	3'48	10	2'62	40	3'72	13	2'29	Otherwise damaged
72	11'37	31	7'82	81	7'53	42	7'00	Salvage services
								<i>Lives—</i>
19	3'00	14	3'59	44	4'09	21	3'34	Crews saved
—	—	—	—	2	0'19	2	0'34	Crews drowned
—	—	—	—	—	—	—	—	{ Lives lost so far as reported in both ships and steamers (see Sailing Vessels, <i>supra</i> )

IV.—*An Iron Trade Chart.*

WE have received a copy of Fossick's Iron Trade Chart, compiled and designed by Mr. R. R. Mabson, F.S.S., and published by Messrs. E. and F. N. Spon, of London and New York, with the following summary of the history of the iron trade as it appears from this chart:—

“The above shows for the past fifty years the great fluctuations continually taking place in prices of rails, Welsh bars, Staffordshire bars, and Scotch pig-iron; also the almost continuous increase in the yearly production and export of iron and steel from the United Kingdom, with the stocks of Scotch pig-iron held at the end of each year.

“From the data given it appears that the production of iron in the United Kingdom increased from 678,417 tons in 1830, to 6,200,000 tons in 1879, the largest production being reached in 1872, when it amounted to 6,741,929 tons.

“The stocks of Scotch pig-iron, which in 1844 amounted to 200,000 tons, reached 250,000 tons in 1845, but fell to 125,000 tons in 1847, when they again commenced to increase, and in 1852 reached 500,000 tons. The lowest point appears to have been touched in 1856, on the termination of the Crimean war, when the total quantity in stock was 100,000 tons, from which point it increased yearly until the end of 1864, when it reached 750,000 tons; by the end of 1867 it had fallen to below 500,000 tons, and then again commenced to show an annual increase until 1870, when it reached 700,000 tons, from which by degrees it diminished, till in 1874 it was down to 100,000 tons. It has since continued to increase yearly, and at the end of last year amounted to a little over 750,000 tons.

“The exports of iron and steel in 1830 amounted to 117,135 tons, and increased each year almost without break, excepting during the Crimean war in 1854-56, and the American civil war in 1861-65, until 1872, when they reached their maximum, viz., 3,382,762 tons; from this they decreased until they reached 2,224,470 tons in 1876, at about which level they continued until last year, when they reached 2,879,834 tons.

“The price of steel rails, which in 1864 was 17*l.* 10*s.* per ton, fell gradually, until in 1870 it averaged for the first half-year 10*l.* per ton; in 1872, and again in 1873, the price once more reached 17*l.* 10*s.* per ton, and by the autumn of last year it had fallen to 4*l.* 13*s.* per ton (about the same price as iron rails), but by the end of the year had risen to 8*l.*

“Welsh bar and iron rail prices, which may be considered synonymous, are perhaps the most reliable, being less affected by speculative purchases than pig-iron; and it is interesting to notice that when a considerable advance in price takes place, it is invariably during the winter months, or between September and March, and that the price seldom remains at the highest point touched more than a month or two, when it falls as rapidly as it



rose, and is generally followed by a second advance and subsequent fall. In 1844 the lowest price of Welsh bars and iron rails was 4*l.* per ton—except for a slight break in the latter part of that year, a continuous rise in price took place to 10*l.* 12*s.* 6*d.* per ton early in 1845, a year which saw a large amount of capital employed in railway construction—a rapid reaction to 7*l.* 7*s.* 6*d.*, caused by the heavy fall in railway securities, was followed by another upward bound to 9*l.* 5*s.* in the autumn, and, despite the panic of 1847, the price remained between 8*l.* and 9*l.* until the close of that year. The collapse of speculation, and the political troubles on the continent in 1848, caused a rapid fall until the end of the year, when the price was only 4*l.* 15*s.* per ton.

“The lowest price touched by Scotch pig-iron appears to have been 32*s.* per ton in 1843; however, in about twelve months it reached 63*s.*, and in 1845 it was nearly 5*l.* 10*s.* per ton. After many fluctuations, it fell as low as 37*s.* in the spring of 1852, but before the year was out the price was nearly 4*l.*, and the following year, 5*l.* Early in 1865 it had fallen to 40*s.*, but before the end of the year it had risen to 60*s.* per ton, and by the following spring went up to 75*s.* The next lowest point touched was 50*s.* in 1870, from which it improved, almost without a break, to 6*l.* 10*s.* in 1872, and 7*l.* 5*s.* in the beginning of the following year; by last autumn it had again fallen to 40*s.*, but improved to 68*s.* before the year was out, and has since been as high as 73*s.* 6*d.*

“Other important points shown by this chart are periods and cycles of upward bounds and periods of depression: thus the chart shows that in 1836, probably owing to the construction of railways, a great upward movement took place in prices; a more or less gradual fall followed until 1843, when renewed building of railways again sent up prices, as we have shown in detail, till the highest point was reached in 1845. Again there was a decadence, until the lowest point was touched in 1852, when the superabundance of bullion began to push up prices, until in the early part of 1853 we have another apex. Comparative steadiness for three to four years, despite the Crimean war, was followed by renewed depression, until the lowest point was reached in 1861. Company-mongering and trade activity in 1863 drove up the prices until another apex was reached in the following year. The trade depression subsequent to the panic in 1866 was followed by a great upward bound soon after the conclusion, in 1871, of the Franco-German war, until in 1872, and again in 1873, the highest points ever touched in the history of this chart are shown. The last few years will be in the reader's recollection, and when we mention that the prices last year descended very nearly to the prices of 1843 and 1852, the severity of the recent trade depression will be readily understood.”

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V.—*Notes on Economical and Statistical Works.*

*Bank-rate in England, France, and Germany, 1844-78: with Remarks on the Causes which Influence the Rate of Interest Charged; and an Analysis of the Accounts of the Bank of England.* By R. H. Inglis Palgrave. Effingham Wilson, 1880.

Mr. R. H. Inglis Palgrave tells us in his preface, that he had originally intended to confine himself to investigating the published accounts of the Bank of England, but he found it desirable to extend the scope of his work to matters which could not be adequately treated without reference to the transactions of the banks of France and Germany. The basis of the inquiry is the "Analysis of the Accounts of the Bank of England," published by him in 1874. This analysis is reprinted, with a great deal of additional tabular matter referring to the same subject. There are also tables relating to the accounts of the banks of France and Germany, and the minimum rates of discount charged by those institutions. Mr. Palgrave has a doctrine to preach in connection with the management of the Bank of England, and his book is intended to enforce its acceptance. He thinks that the practice of the Bank from 1844 to 1877, in stating in the yearly accounts the weekly amounts of the balances at the credit of the London bankers, and also in distinguishing between "bills discounted" and "advances" was a salutary one, and ought to have been carried out further by publishing these items of information each week. Unfortunately, since the issue of the return for 1875, the practice has been discontinued as far as regards the discounts and advances, and in the return for 1878, the balances of the London bankers were also left out. We agree with Mr. Palgrave in thinking that these omissions are much to be regretted, "as much in the interest of the Bank of England itself, as of the public at large." It is useless, however, to lament a determination to abandon a practice which it will be difficult to re-commence, and we must be content with the information we already possess with regard to the magnitude of the bankers' balances, and the way in which they fluctuate during the year. Mr. Palgrave maintains, and it will not be easy to controvert his assertion, that these balances, though they are practically treated as if they were a real reserve, are not a reserve at all, in the proper sense of the word. "Taking the amounts held on deposit by the bankers in London into consideration, and the demands which may be made on them on that account, it would appear that the balances which they keep with the Bank of England rather represent what should, with strictest accuracy, be called their 'till money,' than their 'reserve.' 'Till money,' as every one concerned in business knows, is the amount which every banker is bound to keep close at hand, ready to meet the calls of the moment. It is indispensable to the proper conduct of a business, but it cannot be looked on as a 'reserve.' A reserve, though equally needed to meet immediate calls, must be on a far larger scale than the mere amount of cash necessarily held in this manner." It would be rather a strong thing to say that the bankers' balances

are, and ought to be regarded as "till money," and Mr. Palgrave, no doubt, would not wish to press his conception of their nature to its extreme consequences. It is easy to see what he means, and very few persons would, we imagine, wish to dispute its correctness. Indeed, Mr. Palgrave is able to produce "law and warrant," for his view, out of the mouth of no less a person than an ex-governor of the Bank of England. He quotes from a letter of Mr. H. Hucks Gibbs, to Professor Bonamy Price, published in an appendix to a recent work of the latter.\* Mr. Gibbs expressly states that there is a portion of the bankers' balances which is in the hands of the Bank "only for safe custody." There is, it is true, a minimum which is always in the hands of the Bank, and which it can use for profit, if it pleases, but when this minimum is exceeded, the excess must remain "untouched and uninvested; must, in fact, form an addition to our (the Bank's) *reserve*." In other words, there are times when the Bank's reserve looks larger than it is, considered with reference to the liabilities which it may be called upon to discharge at any moment. As Mr. Palgrave says, "the balances kept by other bankers with it, cannot really form part of its own reserve, and of the other banks as well, unless the amounts thus derived are held in hand ready to meet any emergency." It will be seen that what Mr. Palgrave is attacking, is what Mr. Bagehot called the "one-reserve system," that "example of the greatest economical power, and economical delicacy that has ever existed." That the banks should prefer to keep their reserves with the Bank of England, was a natural outcome of the position in which the Bank has been placed by legislation. To do so is safer and more convenient than for each bank to keep its own reserve. But certainly the sums thus held by the Bank of England, cannot be regarded, and, as we see from Mr. Gibbs' letter, are not regarded as exactly like any other sums of money held by it. The arrangement is not fair to the Bank, as it throws on it the trouble and cost of keeping the whole reserve of the country without this having ever been explicitly said. The Bank might say, so far as the mere letter of the law goes, "we know nothing about the reserve of the whole country, we keep our own reserve, and a very strong one too. If the London bankers like to be our customers as well as our rivals in the discount market, we have no objection, but why should we treat their balances on different principles to those on which we treat the balance of any other customer?" As we all know, the spirit in which the Bank acts in this matter is entirely different from that of the above imaginary speech. But, says Mr. Palgrave, "if there is an axiom to be observed in banking, it is that things should always be regarded as they really are. To have a balance in your hands which you cannot use, is a hindrance to business, and not a help." This seems to us unanswerable, and the thing to be considered therefore is, how can the saving of economical power, attained under the one-reserve system, be made compatible with the better and juster management of the bankers' balances? Mr. Palgrave shows by his

\* *Chapters on Practical Political Economy.* By Bonamy Price, Professor of Political Economy in the University of Oxford. C. Kegan Paul and Co.



excellent tables that the Bank's reserve is somewhat smaller now in proportion to its liabilities than it was thirty years ago, while the proportion of the bankers' balances to the reserve had increased up to the time when the last return showing them was issued. Remembering that, as Mr. Bagehot remarked, "the forces are quicker and stronger than they used to be," the conclusion is inevitable that the reserve ought to be rather larger, and ought not to be so largely composed as it is of money that is counted on as a reserve by powerful customers of the Bank. Mr. Palgrave has examined with considerable minuteness into the history of the discount rates that have been charged by the banks of France and Germany since 1844. One of the results of his investigations is that the fluctuations in the rate of discount are more extensive here than on the continent. On the other hand, the average rate during the period examined was lower in England than in France or Germany. The closer relation in which we now stand to the Paris and Berlin markets, makes it a matter of importance that they should be studied, and Mr. Palgrave's excellent tables will materially assist those interested in attaining a clear conception of their general characteristics.

*The Iron, Steel, and Allied Trades in 1879: Annual Report to the Members of the British Iron Trade Association, 1880.* E. and F. N. Spon, and British Iron Trade Association, Victoria Street.

The year 1879 may fairly be regarded as one of the *anni mirabiles* in the history of the iron trade. The earlier months were characterised by unusual prostration in all the great iron-producing centres, owing to the crisis in the money market and the general fall in prices which followed the failure of the City of Glasgow Bank, while the latter half of the year was a season of an activity in trade as intense as the previous depression had been extreme. The report to the members of the British Iron Trade Association covers so wide an extent of ground, that few details of the events of 1879 are given, but the information supplied as to the character of the year, as a whole, is most valuable. Not the least remarkable among the facts disclosed, is that iron ore was exported from England for the first time in considerable quantities, chiefly for the United States. Probably the demands made on us last year were exceptional, the ironmasters of the United States having been taken by surprise, and the local means of meeting their requirements not having been capable of rapid development. We ourselves were under the necessity of obtaining considerable supplies of hematite from Spain, a fact which is illustrated by the enormous rise in the price of Cumberland hematite, which advanced 150 per cent. in value from the lowest price touched before the end of the year. The influence of the improved American demand was felt in Barrow sometime before it affected Glasgow and Cleveland, the inquiry at first being chiefly an inquiry for steel. It is not yet possible to state accurately what the output of iron ore was in 1879, but we are in possession of the figures of the production of pig. This amounted to 6,200,000 tons, of which 2,879,884 tons were exported, while the home consumption is said to have been 3,309,567 tons. As the latter quantity is expressly stated to be an



estimate, there seems a slight inconsistency in giving the last three places of figures. Of the total production of pig iron, 1,781,443 tons were made in Cleveland, and 932,000 in Scotland, so that these two districts produced nearly one-half the total output of the United Kingdom. With regard to Cleveland, it is worth noting that the shipments of this description of iron for 1879 were the largest on record, the next largest being those of 1877. The production, on the other hand, was a good deal less than that of any year since 1870. The number of furnaces in blast at the close of the year in Cleveland was 96, out of 165 built, while in Scotland the furnaces blowing numbered 100 out of 154. The inferior output of Scotland per furnace, is accounted for by the fact that more than half of these Scotch furnaces are of antiquated types, which the owners are hardly likely to use except when obliged, while the Cleveland works are equipped with a great number of the best furnaces that modern science has been able to invent. As regards the course of prices in 1879, the report supplies information from abroad in two cases, namely, from the United States, and from Germany. It appears that the rise in "No. 1 anthracite foundry pig" in Philadelphia amounted to 106 per cent., and the rise in foundry pig at Düsseldorf was 25 per cent. Early in 1880, however, a further rise in the latter occurred. The progress made in economising the fuel used for producing iron, is illustrated by two tables, showing the amount of coal used in producing a ton of iron in 1840, and in each year from 1869 to 1878. The change during the last ten years is extraordinary. In 1869 3 tons of coal were burnt per ton of iron produced; in 1878 the coal expended was only 2 tons 4 cwt., a reduction of over 26 per cent. It has not been found possible to give a similar statement for the other iron-producing countries of the world, but the report contains a table showing the average annual make of pig iron per furnace in all the important countries, except Russia, concerning which there are no sufficient data. As the information given by the table is new, we print it in full:—

*Furnaces Built and in Blast, and Average Annual Make of Pig Iron per Furnace throughout the World.*

Year.	Country.	Number of Furnaces Built.	Number of Furnaces in Blast.	Tons of Pig Iron Produced.	Tons of Pig Iron per Furnace at Work.
1876....	Austria .....	279	166	400,426	2,412
'77....	Belgium .....	61	26	425,200	16,353
'78....	France .....	464	270	1,217,838	4,510
'76....	Germany .....	463	297	1,846,345	6,216
'78....	Great Britain ...	948	498	6,381,851	12,813
'76....	Sweden .....	325	224	350,541	1,560
'78....	United States ...	692	257	2,577,361	10,028
	Total .....	3,232	1,738	13,198,762	Mean 7,699

We may remark that the "mean" here given is open to objection on statistical grounds. No satisfactory mean can be obtained

from the separate averages of each country, on account of the differences in the output of the countries and the consequent different "weight" that should be assigned to the averages, neither is it possible to deduce the mean from the totals, inasmuch as they are made up of items which belong to different years. Although the table is less effective than it might be, if the other countries of the world were not so slow in publishing their statistics, it is a valuable one. It would be interesting to inquire into the cause of the enormous difference in make per furnace between France and Belgium. The figures given in a similar table concerning the production of Bessemer steel per converter, are rather startling. It appears that in the United States the annual production per converter is 36,988 tons, while in Great Britain it is only 12,272 tons, about 550 tons less than in France. Possibly the superior speed of the American and French makers may be attained at the cost of quality, but in any case the matter, on the face of it, requires investigation. It is remarked in the report that unfortunately no record has been kept up to the present time of the production of manufactured iron in the United Kingdom. It is to be feared that accurate information on this point will never be obtained, but an attempt has been made in the report to determine the amount of iron rails that have been made since 1856. The table in which the results are given, is based on the new railway mileage, considered as a single line, laid down each year; the known length of the total mileage of the kingdom, considered as a single line, each year; the assumption of ten years as the average life of a rail; and the assumption of 100 tons to the mile. The tonnage for new lines, and the tonnage for renewals, is easily calculated; the tonnage exported is known, and by adding these three items together we have, approximately, the make for each year. This method is ingenious, and the results of the table are valuable; but we have one or two criticisms to make on the summary of the results of the period 1857-78, which is appended to it. These consists of (1) the "average of miles open;" (2) the "average tonnage used annually;" (3) the "annual average" tonnage of tons used in renewals; (4) the "average" tonnage of rails exported; and (5) the "average" of rails made. Now there is no objection whatever to make against the use of the word "average" to describe the statistical number given in the second, fourth, and fifth cases, but there is a grave objection to its use in those of the first and third. The average tonnage of rails exported is a real statistical quantity, it furnishes a real measure of a rough sort for the magnitude of the exports of any given year. But the average mileage of twenty consecutive years is not a statistical fact at all. For there cannot be a statistical average for a series of quantities which are *ex hypothesi* in ascending order of magnitude. The only average of any value in the case of the annual mileage of the railways of a country, would be the *average annual increase* in that mileage. The same criticism applies to the "average tonnage used in renewals," this tonnage being *ex hypothesi* a function of the mileage. No harm is done to the usefulness of the table by the insertion of these two figures, which we must characterise as unmeaning; but the practice

of introducing unmeaning "averages" into statistical tables is so prevalent, that a protest ought to be made against it. To give an "average" for a series of numbers which cannot possibly yield an average, but only an arithmetical mean, is a solecism; it is almost as bad as the case mentioned by M. Block, of the ingenious gentleman who stated the numbers of those killed on the 10th of August by cannon, bullet, and sword, added them together, and then stated that "the mean was so-and-so." We may mention that there are seven printer's errors in this table, one is a 0 for an 8 in the "total make" of 1865, the other is 22,320 instead of 24,320 in the mileage of 1867, and there are corresponding errors in the totals. To make yet another criticism, it is a pity that in the interesting table given on p. 104, showing the rise in the prices of the shares of Belgian iron and coal companies, that the paid-up value of the share of each company was not given, as well as the number of shares, thus rendering it possible to measure the appreciation in the total value of the capital invested.

*Europäische Staatenkunde. Mit einem Anhang: die vereinigten Staaten von America. Mit Benutzung der hinterlassenen Manuscripte Oscar Peschel's nach den Originalquellen bearbeitet von Otto Krümmel. Erster Band. Erste Abtheilung. Allgemeiner Theil—Das Preussische Reich—Skandinavien—Dänemark—das Britische Reich. Leipzig: Verlag und von Duncker und Humboldt. 1880.*

By the request of the widow of the late Professor Oscar Peschel, of Leipzig University, the papers left by the latter have been edited by Dr. Krümmel, of Göttingen. Professor Peschel's studies were directed to the investigation of the "Staatenkunde" (a word not easy to translate) of Europe. By "Staatenkunde" the Germans mean the study of the conditions under which the existing political divisions of the world have arisen and continue to exist. With this view Professor Peschel examined the climatic, geological, and other physical conditions of each of the European States, and then proceeded to deal with their ethnology. He also gave a careful account of the industries and occupations of each people, and of their political and social systems. He made a free and excellent use of statistics. This was the scheme on which, as we understand from Dr. Krümmel's preface, Professor Peschel prepared his lectures, and on which, as well as on notes found after his death, the present volume is based. The profound learning shown in this remarkable book, and the intimate knowledge it displays of the life and character of countries other than Germany, especially our own, make it the more unfortunate that Professor Peschel did not live to complete it. At the same time the volume reflects the greatest credit on Dr. Krümmel, for to him is owing the excellent order in which its necessarily somewhat incoherent materials are placed before the public. Dr. Krümmel, with great modesty, says very little about his own share in the work, but it is easy to imagine how much time and care must have been spent on it before the volume could have appeared in its present form. The tabular matter is very well prepared, but as far as we can see, it does not contain any information not obtainable elsewhere. In fact, the statistical portion of the work is quite subsidiary and subordinate to the more



important ends kept in view by the author and his editor. As a work of reference, this work will be found very useful to the student of sociology, as well as to the political inquirer.

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VI.—*Notes on some of the Additions to the Library.*

*An Essay on the Improvements in the Education of Children and Young People during the Eighteenth and Nineteenth Centuries.* By Beatrice A. Jourdan. *Howard Prize Essay of the Statistical Society*, 1879. Elliot Stock, Paternoster Row, 1880.

Miss Jourdan's essay is necessarily little more than a sketch of the growth of the education of children in this country, but it is a very good sketch. It is well written, and in a style which shows a greater mastery of the subject than is usually to be found in compositions of the class to which it belongs. The earlier pages are devoted to a brief description of the history of education previous to the eighteenth century, a history which is characterised by alternate periods of attempts to extend education, followed by periods of almost total cessation from all efforts of the kind. There was not much zeal for education during the Wars of the Roses for instance, and probably the state of intellectual lethargy into which that exhausting struggle plunged the country, made the period of the revival of letters seem doubly bright. The political troubles which arose later, were not favourable to the spread of education, and the condition of the people in this respect declined greatly, except in Scotland, where the principle of compulsion was early recognised. The most remarkable, and in some respects the most unfortunate of the effects of the frivolity which marked the reign of Charles II was, as Miss Jourdan says, that "among the higher and middle classes of society (and with regard to these classes alone had the matter been hitherto esteemed worthy of attention) the education of women fell into singular disrepute." This state of things continued to be the rule well on to the close of the eighteenth century. Miss Jourdan thinks that the curious prejudice against giving women mental cultivation, was becoming much less potent during the latter half of the century. But certainly in some quarters this irrational feeling continued to be manifested long after, and may indeed be said to be not wholly defunct even yet, though for the last twenty years at all events, it has been powerless for mischief. Miss Jourdan traces the gradual growth of a wiser and better feeling on the subject of education at large, giving due prominence to the early workers who gave their labour to education at a time when it was unpopular and unfashionable, to the Lindseys, Raikes, Mores, and especially John Howard. The efforts of later educationalists are less interesting, though fully as useful. At the beginning of this century, the need for education was fairly recognised, though odd notions were still held as to special points, the teaching of writing in national schools for instance being resisted by a few educationalists of the older type, until the present century had well begun. Miss Jourdan describes the labours



of the Manchester Statistical Society, and of the committee of the Central Society of Education, directed to investigating the condition of the various classes of schools in England. That as a whole they were found to be very inefficient, ludicrously so in some cases, is well known. In spite of our national talent for organising social machinery, the problem of education was more than we could manage, chiefly, no doubt, because the great mass of the people were not sufficiently alive to the need for its solution. Ever since 1839, when Lord John Russell successfully fought for an increase to the education grant, the question has been before parliament, and at length was recognised as requiring legislation. Miss Jourdan has necessarily little to say about the present system, not only because all are more or less familiar with it, but because it is hardly, as yet, possible to judge fairly of its merits. All we can say at present is, that the organisation has been created by which, if sufficient energy and zeal is maintained, proper instruction may be given to all children. In concluding this brief notice of Miss Jourdan's little work, we may remark that it is peculiarly fitting that the Howard prize should have been awarded on this occasion to a lady, since education is a subject which even the most *arriérés* thinkers admit to be within "a woman's sphere," whatever that oft used, but most incomprehensible phrase may mean.

*Industrial Geography Primers.* By G. Phillips Bevan, F.G.S. *Great Britain and Ireland.*

*Industrial Geography Primers.* By the same. *France.* W. Swan, Sonnenschein and Allen, Paternoster Square, 1880.

Mr. Bevan has commenced the publication of a series of Industrial Geography primers, which promise to be very useful. The two at present before the public deal with the United Kingdom, and with France. They give a general account of the products and manufactures of these countries, specifying the head quarters of each industry. At the end of each is a list of the territorial divisions of the country, in alphabetical order, with the towns where any important manufacture is carried on. It is hardly possible that works of this kind should be absolutely free from errors, whether of typography, or of other origin, and we hope Mr. Bevan will not mind our pointing out one statement we notice in the primer of France, which, though strictly correct, is likely to mislead his readers. On p. 42, he says, speaking of a district of Eastern France, "here are made the celebrated Gruyère cheeses." The student would imagine, from this, that Gruyère is in France, and not in Switzerland. We believe that the majority of Gruyère cheeses are still made in Switzerland, though not at Gruyère itself. There is also a misprint on p. 2, Mt. Iseran being said to be the highest point in the Graian Alps, a distinction really occupied by Monte Viso. Mt. Iseran is only a pass. Both volumes give an account of the railway system, and of the principal parts of the countries they treat of.

*Précis of Official Papers. Being Abstracts of all Parliamentary Returns directed to be printed by both Houses of Parliament. Session 1880. No. 1.* W. H. Allen and Co., 13, Waterloo Place. (Subscription 32s. per annum, postage free.)

Messrs. Allen have commenced the publication of a most useful work, the need of which has been felt for a long time, though until now, no one has had the courage to attempt it. The enormous number of blue books and other parliamentary papers issued in the course of the year, and the prodigious length of some of them, is a most serious drawback to their usefulness. For purposes of reference, again, it is often difficult to procure the particular paper wanted, unless the inquirer knows its number and other particulars regarding it. The "Index to Parliamentary Papers" is of course of some use, but it does not meet the want fully. Messrs. Allen give first a table of contents in which the papers are arranged in their numerical order, then a table of contents in which they are arranged in alphabetical order, by reference to their subject matter, and then follows a *précis* of each paper. The *précis* is very well done. We hope that the success of this most useful work will be such as to enable Messrs. Allen to carry it on permanently.

*Preliminary Report. The Rate of Fatal and Non-Fatal Accidents in and about Mines and on Railways, with the Cost of Insurance Against such Accidents.* By Francis G. P. Neison, F.S.S., &c., Actuary. Harrison and Sons, 1880.

We are only able to notice briefly this able and valuable report. In his letter to Mr. M. W. Peace, Solicitor, of Wigan, which is prefixed to it, Mr. Neison, says:—"This report is preliminary to the extent that though the subject of accidents in mines has been fully dealt with, the sections relating to accidents on railways, and the cost of insurance have been completed on very short notice," they being required for use by a deputation which a week or so back waited on Mr. Gladstone, with reference to the Employers' Liability for Injuries Bill. The most striking point brought out by the tables on which the report is based, is the fact that the most general cause of accidents in mines is not fire damp, but falls of portions of the roof or of coal. Accidents from this source amount to over 49 per cent. of the whole. It is true, explosions, when they do occur, are very deadly in their results, but even as regards the number of lives lost, they are the cause of only 22 per cent. of the whole mortality from mining accidents. The whole report is well worth study. But we wish Mr. Neison had not allowed the tables to be deformed by so wholesale a use of what M. Block, with pardonable heat, terms "*ces vilaines inscriptions perpendiculaires.*" We have no hesitation in saying that these need never appear at all. It is a mere question of absolutely prohibiting printers from setting headings to columns in that way.

*Uebersichten über Production Verkehr und Handel in der Welt-wirtschaft.* Von Prof. Dr. F. X. von Neumann-Spallart. Jahrgang 1879. Stuttgart. Verlag von Julius Maier, 1880.

We have to notice the publication of the second number of Dr. Neumann's "Uebersichten." This valuable work, which made its appearance for the first time last year, as the successor to the author's yearly contribution to Behm's "*Geographische Jahrbuch,*" contains a most useful general account of the world's trade, and of the leading industries of the various countries. Owing to the

slowness with which the statistical returns of the Continent are published, the figures given are often sadly behind the times, though they are of course the latest available.

*Historical-Statistical Notes on the Production and Consumption of Coffee.* By N. P. Van den Berg, LL.D., h. c. President of the Java Bank, Vice-President of the Batavia Chamber of Commerce and Industry. Translated from the Dutch by G. G. Batten. Batavia. G. Kolff and Co., 1880.

Mr. Van den Berg has published a very interesting monograph on coffee. He deals with the history of the gradual extension of its cultivation in various parts of the earth, but especially in Java. He also gives us information on the present position of the coffee industry, with the latest figures obtainable relative to its production in each country. M. Van den Berg is in favour of a policy of free trade in this important article, and he recommends his countrymen to lead the way in adopting measures which would increase its consumption.

*The Progress of the World in Arts, Agriculture, Commerce, Manufactures, Instruction, Railways, and Public Wealth, since the beginning of the Nineteenth Century.* By Michael G. Mulhall, F.S.S., Author of *English in South America, &c., &c.* Edward Stanford, 1880.

Mr. Mulhall has produced a useful and interesting volume, though we cannot say the figures are always to be trusted, and too many are given without any means of verification. One statistical book on such a matter as the *Progress of the World*, cannot differ much in subject matter from another similar work of the same size. The information given must be very general in its character. It is interesting, however, to compare this volume with that of Dr. Neumann-Spallart's *Uebersichten*, who treats the subject by taking the departments of industry in succession as the main head, and making each country a subhead. Mr. Mulhall, in common with most English statisticians, adopts the old fashioned method of dealing with each country successively, and describing all its industries. Both methods are useful, but as that of which Dr. Neumann's book is an example is less known in England than it might be, we rather wish some one would publish a work on that plan here. Mr. Mulhall seems fairly acquainted with the continental statisticians: he quotes M. Block pretty frequently; Engel and Mayr he apparently knows only at second-hand.

*Protection and Bad Times, with Special Reference to the Political Economy of English Colonisation.* By George Baden-Powell, M.A., F.R.A.S., F.S.S., Author of *New Homes for the Old Country*. Trübner and Co., 1879.

Mr. Baden-Powell divides his book into four parts, viz., into an Introduction on Political Economy in General, on Protection, on Commercial Depressions, and on "England as an Example." He is a strong opponent of protection, and he brings out a point which, though not new—for it would be wholly impossible to find a really new point in treating this most threshed-out of themes—has been less developed than some other parts of it. He calls the attention of the protectionist to the fact that his system, apart from the



direct loss to the nation occasioned by high import duties, sets in motion forces which will render it powerless in the long run. A nation which "protects" one class of producers against the competition of the producers of another nation, by shutting out what they make, will speedily find that it has destroyed a market for its own products. The nation against whom the tariff is directed will be unable to take the products of the protectionist country, and will be forced to set up manufactures of these for itself. This is no doubt partially true, but the greatest indirect loss incurred by nations which guard their shores by a barrier of import duties, is the loss of the advantages of having a large carrying trade, for a large proportion of the ships which enter its ports necessarily do so in ballast. Mr. Baden-Powell treats specially of the application of protection in a new country, and shows how mischievous it is in all cases; how it sets up the wrong industries and hampers the right ones. At the same time he maintains that there is no objection to bounties on successful manufactures in new countries, as, for instance, a bounty on the first bale of cotton or other product that is sent to market. The objection here of course is that Governments are no judges of the relative merits of different manufactures. They are composed of individuals, and individuals frequently have "fads." No individual is an entirely safe judge of whether any industry will pay, not even if he risks his own money in the business—certainly not when he is going to risk nothing. With regard to commercial depressions, Mr. Baden-Powell's remarks are very sound, though his analysis of their causes is not satisfactory in all respects. He states these causes to be:—1. Waste of capital. 2. Waste of labour. 3. Failure of natural agencies. 4. Closing of markets. 5. Glut of markets. Under the third head he adverts to the theory that trade has a tendency to move in cycles, which are dependent on general telluric conditions. He admits that the phenomena of periodicity in commercial crises suggest a connection, which is on other grounds very probable, between these and the periodic changes in the productive forces of the globe. He does not touch on the idea that, apart from the physical periodicity, there may be a psychical periodicity, shown in the rise, growth, culmination, and finally the destruction of that wonderful psychical state known in the city as "confidence." In conclusion, there is one point in regard to which, as it seems to us, Mr. Baden-Powell enjoys a most enviable distinction. He has written a book in which depression of trade occupies a considerable space, and yet he has not, so far as we know, so much as mentioned silver.

*Egyptian Statistical Tableau for the Year 1879.* Compiled and published annually by R. J. Moss and Co., Alexandria, Egypt.

Messrs. Moss's *Egyptian Statistical Tableau* is a very well arranged sheet. It gives estimates of the quantities and values of the principal imports and exports of Egypt, together with the estimated total values of the imports and exports, and tables relating to the prices of cotton and coal, and the shipments of the former to the United Kingdom and to the Continent. Similar



information is supplied with regard to wheat, beans, and cotton seed, and tables are added showing the exchanges throughout the year, the number and tonnage of the merchant ships cleared at Alexandria, and the rise of the Nile in 1877-79, as registered by the Nilometer at Cairo.

## VII.—Additions to the Library.

*Additions to the Library during the Quarter ended 30th June, 1880.*

Donations.	By whom Presented.	
<b>Argentine Republic—</b>		
Informe presentado á la Oficina de Estadística de Buenos Aires, por el Dr. E. R. Coni. 31 pp., 8vo. 1880 .....	Statistical Bureau	
Registro Estadístico de la Provincia de Buenos Aires, año 1874. Folio. Buenos Aires, 1876 .....		
<b>Austria and Hungary—</b>		
Statistisches Jahrbuch für 1877. Hefte 2, 7, und 10, und für 1878, Heft 7. Imp. 8vo. Wien, 1880 ....	Imperial Central Statistical Commission	
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TUPP (A. C.). The Indian Civil Service List for 1880. 571 and lxxxv pp., cloth, diagram, 8vo. Madras .....	The Author
VAN DEN BERG (N. P., LL.D., &c.). Historical-Statistical Notes on the Production and Consumption of Coffee. (Translated from the Dutch by G. G. Batten.) 92 pp., 8vo. ....	

*Donations—Contd.*

Donations.	By whom Presented.
<b>Authors, &amp;c.—Contd.</b>	
<b>VARRENTRAPP (Dr. G.)—</b>	
Offener Brief an Herrn Dr. Erhardt, von München betreffend Dr. L. Winterhalter's Schrift "Zur Kanalisation von München." 24 pp., 8vo. München, 1880.....	The Author
Several Pamphlets containing Reviews of various English Government Reports, &c. 8vo. ....	
<b>VESSÉLOVSKY (A.).</b> L'Impôt sur le Revenu Mobilier en Italie. 133 pp., diagram, imp. 8vo. St. Pétersbourg, 1879 .....	"
<b>VINE (J. R. SOMERS).</b> Alphabetical List of the Members of the New House of Commons, 1880, with various Electoral Statistics. 24 pp., 8vo. London .....	
<b>WALRAS (LÉON).</b> Théorie Mathématique du Billet de Banque. 8vo.....	The Author
<b>Societies, &amp;c.—</b>	
Actuaries, Journal of the Institute of. Vol. xxii, part 3, No. 119, April, 1880. 8vo. ....	The Institute
Arts, Journal of the Society of. Current numbers....	
Bankers, Journal of the Institute of. Parts 7 and 9, April and June, 1880. 8vo. London .....	The Institute
Civil Engineers, Minutes of Proceedings of the Institution of. Vol. lix, Part 1, 1879-80. Cloth, plates. 8vo. London .....	
Labourers' Friend, The Magazine of the Society for Improving the Condition of the Labouring Classes. No. 264, April, 1880. 8vo. ....	The Society
Royal Agricultural Society, Journal of the. Second series, vol. xvi, part 1, 8vo. 1880 .....	
Royal Asiatic Society, Journal of the, new series, vol. xii, part 2, April, 1880. Map, 8vo. London....	"
Royal Geographical Society, Proceedings of the. Vol. ii, Nos. 4—6, April—June, 1880. 8vo. London .....	
Royal Medical and Chirurgical Society, Proceedings of the. Vol. viii, No. 9. 8vo. London .....	"
Royal Society, Proceedings of the. Vol. xxx, Nos. 202—204. 8vo. London .....	
Royal United Service Institution, Journal of the. Vol. xxiv, No. 104, 1880. Plans, 8vo. ....	The Institution
St. Thomas's Hospital, Statistical Report of the Patients Treated in, for the years 1876-77. 256 pp., 8vo. London .....	
Social Science Association, Sessional Proceedings of the. Vol. xiii, No. 4, June, 1880. 8vo. London .....	The Association
Surveyors, Transactions of the Institution of. Vol. xii, Parts 9—12. 8vo. London, 1880 .....	

H. Percy Potter,  
Esq., F.R.C.S.

*Donations—Contd.*

Donations.	By whom Presented.
<i>Periodicals—</i>	
Athenæum, The. (Monthly parts) .... Current numbers	The Editor
Bankers' Magazine (London) .....	"
Commercial World, The.....	"
Economist, The .....	"
Insurance Gazette, The .....	"
,, Record, The .....	"
Investors' Monthly Manual, The .....	"
Iron and Coal Trades Review .....	"
Machinery Market, The .....	"
Nature .....	"
Review, The.....	"
Statist, The .....	"
Textile Manufacturer, The.....	"
Universal Engineer, The .....	"

*Purchased.*

Allen's Précis of Official Papers. Session 1880. No. 1. 8vo. London.

Annales d'Hygiène Publique. 3<sup>e</sup> série, Nos. 16—18, Avril—Juin 1880. 8vo. Paris.

Annual Register for 1879. Cloth, 8vo. London.

BEDDOE (JOHN, M.D.). On the Stature and Bulk of Man in the British Isles. 8vo. London, 1870.

Index Society's Publications, No. 5—

An Index of Hereditary English, Scottish, and Irish Titles of Honour, by E. Solly, F.R.S. 4to. London, 1880.

Shaw's Local Government Manual and Directory for 1880. Cloth, 8vo. London.



## JOURNAL OF THE STATISTICAL SOCIETY,

SEPTEMBER, 1880.

REPORT of the COUNCIL for the FINANCIAL YEAR ended 31st December, 1879, and for the SESSIONAL YEAR ending 30th June, 1880, presented at the FORTY-SIXTH ANNIVERSARY MEETING of the STATISTICAL SOCIETY, held at the Society's Rooms, Somerset House Terrace (King's College Entrance), Strand, London, on the 30th of June, 1880, and of the PROCEEDINGS at the Meeting.

*The President, THOMAS BRASSEY, ESQ., M.P., in the Chair.*

THE circular convening the meeting having been read, and the minutes of the last ordinary meeting read and confirmed, the following report was read:—

*Report of the Council.*

The Society is now in the forty-seventh year of its existence, and the Council have again to state, to quote the language of last year's report, that it "fully maintains the position it has obtained "as respects the number of its members, and its power to fulfil "the objects for which it was established."

In the past year the number of members has risen from 746 to 783. The result compares as follows with the average of the previous ten years:—

Particulars.	1879.	Average for the Last Ten Years.
Number of Fellows on 31st December .....	783	545
Life Members included in the above .....	119	81
Number lost by death, withdrawal or default .....	52	31
New Fellows elected .....	89	67

Since the 1st of January last 46 new Fellows have been elected.

The financial condition of the Society also shows satisfactory progress, notwithstanding a slight decrease in the receipts from all sources in 1879, viz., 1,698*l.*, as compared with 1,732*l.* for the previous year. This slight falling off is more than accounted for by a reduction of the receipts from compositions, which are of a fluctuating character, and there has been real progress in the permanent sources of income. This is brought out by the subjoined analysis of the receipts of the Society for the last five years:—

Receipts per	1879.	1878.	1877.	1876.	1875.	Average for Five Years.
	£	£	£	£	£	£
Dividends .....	65	55	41	38	48	49
Annual Subscriptions .....	1,300	1,197	1,117	1,054	928	1,119
Compositions .....	126	294	252	168	105	189
Journal sales .....	176	169	151	159	133	158
Advertisements in Journal	31	17	36	19	17	24
	1,698	1,732	1,597	1,438	1,231	1,539

The investments of the Society at the present time are increased to 2,700*l.* of New Three per Cents, as compared with 2,400*l.* a year ago. The following is a comparison of certain particulars for last year, with the average of the previous ten years:—

Particulars.	1879.	Average of Last Ten Years.
	£	£
Balance at beginning of year .....	194	257
Receipts from all sources .....	1,698	1,234
Cash balance at end of year.....	84	255
Surplus of assets over liabilities .....	4,195	2,615

A comparison of the principal figures at intervals of ten years from the formation of the Society, will farther show the progress that has been made:—

*Comparison of Condition of Society at Intervals of Ten Years, on 31st Dec.*

Year.	Number of Fellows.	Income.	Expenditure.	Amount Invested.	Liabilities.	Cash Balance.
		£	£	£	£	£
1839 ....	398	819	849	867	306	60
'49 ....	387	734	764	867	383	34
'59 ....	357	729	743	867	287	297
'69 ....	400	796	726	1,136	115	200
'79 ....	783	1,698	1,427	2,283	238	84

It will be noticed that great progress has been made during the last decade. The number of Fellows having been nearly doubled, while the income and amount invested have been more than doubled in that time. The following table gives the particulars for each year of that period:—

Year.	Number of Fellows.	Income.	Expenditure.	Amount Invested.	Liabilities.	Cash Balance.
		£	£	£	£	£
1870 ....	403	852	839	1,136	135	214
'71 ....	431	880	804	1,136	125	290
'72 ....	454	1,112	806	1,322	135	411
'73 ....	530	1,248	1,097	1,507	135	376
'74 ....	588	1,377	1,491*	1,507	460	62
'75 ....	607	1,231	1,733*	1,207	216	94
'76 ....	611	1,438	1,340*	1,207	187	192
'77 ....	683	1,597	1,286	1,398	201	312
'78 ....	746	1,732	1,345	1,902	168	194
'79 ....	783	1,698	1,427	2,283	238	84

\* The expenditure of these years was affected by the heavy expenses incident to moving into new premises.

Confirmation of the steady progress of the Society may be again referred to with satisfaction, as indicated by the increasing sale of the Society's *Journal*. The average of the annual sales

		£
In the ten years 1841-50	was .....	56
"	'51-60 "	83
"	'61-70 "	97
In the nine years '71-79	" .....	150
		2 E 2

The amount realised in 1879 as already shown was 176*l.*, which exceeds that of any previous year.

The library of the Society continues to increase in size rapidly, chiefly from the numerous and liberal donations received from all parts of the world.

The Opening Address of the President was given on the re-assembling of the Society in November, and the papers read and the members elected at each of the monthly meetings are recorded as follows :—

### SESSION 1879-80.

---

*First Ordinary Meeting, Tuesday, 18th November, 1879.*

The President, THOMAS BRASSEY, Esq., M.P., in the Chair.

The following were elected Fellows :—

William John Cooper.  
Francis S. Powell, F.R.G.S.  
Francis Henry Nalder.  
Joseph Leete.  
J. Fisher Smith.  
Mark Whitwill, J.P.  
Fung Yee.  
H. Ribton Cooke.  
Francis W. Pixley.

William Miller.  
Frederick W. Barry, M.D.  
Henry L. Jephson.  
Edward Fisher Bamber, C.E.  
William Neilson Hancock, LL.D.,  
M.R.I.A.  
Howard Payn.  
Evan C. Nepean.  
James Adams Wenley.

The President delivered an Opening Address, and declared the “Howard Medal” for 1879 (with 20*l.*) to be awarded to

MISS BEATRICE A. JOURDAN.

*Second Ordinary Meeting, Tuesday, 16th December, 1879.*

The President, THOMAS BRASSEY, Esq., M.P., in the Chair.

The following were elected Fellows :—

W. A. Thomas.  
Edwin Bowley.

William Tipping.  
Frederick Harris.

Mr. R. H. Patterson read a Paper on, “Is the Value of Money “Rising in England and Throughout the World? with Remarks “on the Effects of the Fluctuating Condition of Trade upon the “Value of Money.”



*Third Ordinary Meeting, Tuesday, 20th January, 1880.*

SIR RAWSON W. RAWSON, C.B., K.C.M.G., Vice-President,  
in the Chair.

The following were elected Fellows:—

William Davies Stephens.	A. Marshall.
David Aitcheson.	Robert Bruce Ronald.
Byron L. Ronald.	William Summers, M.A.
Lionel Frederic Lee.	Frederick Charles Danvers.
Alexander John Finlaison.	

Mr. G. Phillips Bevan read a Paper on “The Strikes of the  
“Past Ten Years.”

*Fourth Ordinary Meeting, Tuesday, 17th February, 1880.*

SIR RAWSON W. RAWSON, C.B., K.C.M.G., Vice-President,  
in the Chair.

The following were elected Fellows:—

Alfred Cotterill Tupp.	Jervoise Smith.
Philip Henry Fowell-Watts.	Isaac Lowthian Bell, M.P.
Michael G. Mulhall.	George Alfred Oakeshott.
William Parkin.	Wilfred Arthur Bowser.
T. Eglinton A. Gwynne.	Hon. Frederick Strutt.

Mr. Thomas A. Welton read a Paper on “Certain Changes in  
“the English Rates of Mortality.”

*Fifth Ordinary Meeting, Tuesday, 16th March, 1880.*

SIR RAWSON W. RAWSON, C.B., K.C.M.G., Vice-President,  
in the Chair.

The following were elected Fellows:—

Walter Johnson.	A. F. Roberts.
William John Cox.	Isidor Oelsner.

(a) Dr. T. Graham Balfour, F.R.S., read a Paper on “Vital  
“Statistics of Cavalry Horses.”

(b) Professor Leone Levi, LL.D., read a Paper entitled “A  
“Survey of Indictable and Summary Jurisdiction Offences in  
“England and Wales, from 1857 to 1878.”

*Sixth Ordinary Meeting, Tuesday, 20th April, 1880.*

WM. NEWMARCH, Esq., F.R.S., Honorary Vice-President, in the Chair.

The undermentioned was elected a Fellow:—

James Stark.

The following were elected Honorary Members:—

Signor Luigi Cossa, of Pavia.

Signor Emilio Morpurgo, of Padova.

Signor Angelo Messedaglia, of Rome.

Dr. F. J. Mouat, F.R.C.S., read a Paper on “The Education  
“ and Training of the Children of the Poor.”

*Seventh Ordinary Meeting, Tuesday, 11th May, 1880.*

DR. W. A. GUY, F.R.S., Honorary Vice-President, in the Chair.

The following were elected Fellows:—

John Holms, M.P.

Frederick Burt.

John Pender, M.P.

Walter Wren, M.P.

John Charles Twist.

Thomas Charles Baring, M.P.

(a) Captain P. G. Craigie read a Paper on “Ten Years’ Statistics  
“ of British Agriculture, 1870-79.”

(b) A Paper by Messrs. J. B. Lawes, F.R.S., and J. H. Gilbert, F.R.S., on “The Home Produce, Imports, Consumption, and Price  
“ of Wheat over the Harvest Years 1852-53 to 1879-80,” was read  
by Dr. Gilbert.

*Eighth Ordinary Meeting, Tuesday, 15th June, 1880.*

DR. W. A. GUY, F.R.S., Honorary Vice-President, in the Chair.

The following were elected Fellows:—

Stanley Leighton, M.P.

Charles Schreiber, M.P.

Joseph Whitwell Pease, M.P.

Robert Jasper More.

Hon. Wilbraham Egerton, M.P.

The Rt. Hon. Joseph Chamberlain, M.P.

William Lavies Jackson, M.P.

George Ready.

William S. Caine, M.P.

Joseph C. Bolton, M.P.

William Young Craig, M.P.

Joseph Lovegrove.

George Henry Finch, M.P.

James Rankin, M.P.

Charles Seely, junr., M.P.

Chas. H. Crompton-Roberts, M.P.

The undermentioned were elected Honorary Members:—

His Excellency M. Jean Babtiste Léon Say, of Paris.

The Hon. Charles F. Conant, of Washington, U.S.A.

M. le Dr. Jacques Bertillon, of Paris.

Mr. R. Price Williams, C.E., read a Paper “On the Increase of  
“ Population in England and Wales.”

The above sufficiently indicates the character of the different papers which have been read at the meetings. Those meetings, for the most part, have also been numerous attended, and although there has been perhaps less excitement than in the two previous sessions, there is apparently no abatement of real interest in the proceedings of the Society. Among the new members in the present session, there is a considerable number of members returned to Parliament at the late general election, including one or two of the more prominent members of the House.

Among the matters which have occupied the attention of the Council during the year, apart from papers read, have been the approaching Census of 1881, the retirement of Dr. Farr from his office as Superintendent of Statistics in the Department of the Registrar-General, the Rowland Hill Testimonial, and the question of obtaining better House Accommodation for the Society.

With regard to the Census, the step taken by the Council was the appointment of a special committee, which duly considered the subject, and which finally prepared a memorial to the President of the Local Government Board. This memorial was adopted by the Council, and duly presented, and has been printed in the Society's *Journal*. The Council have now to express their regret at the very great delay which has occurred in passing a Census Bill. To give suitable time for preparation, an Act should have been passed in the session of 1879, but no Bill was brought in until the present year, when the delay caused by the elections has made it quite hopeless to get the measure passed till the very close of the present session.

The retirement of Dr. Farr from his office was the occasion of a special vote by the Council, expressing their high appreciation of his long services to the Government and the country, as well as specially to this Society, in the cause of statistics. The Government conferred on him the decoration of C.B., the only special honour which these long services have received. The Council are glad to notice that a public testimonial to Dr. Farr is being promoted by a most influential committee, including many leading members of this Society.

The Rowland Hill Testimonial has been supported by a small donation from the Council of the Society, in order to mark their sense of the great services to the community of a distinguished member of this Society, though for many years before his death he took no active part in their proceedings.

With regard to the subject of House Accommodation, the Council regret to say that no progress has been made, although a special committee on the subject has held many meetings and made numerous inquiries. The project of a common building for several learned societies, to be called "The Hall of Applied

“ Sciences,” which was encouraged by the offer of Dr. Siemens to contribute 10,000*l.* towards such building, has also fallen through, in consequence of the indisposition of the societies, in which Dr. Siemens was himself most immediately interested, to go on with the matter. The Council propose next session to continue the appointment of the committee.

The Society was well represented by its Fellows at the Meeting of the British Association at Sheffield in August, 1879, and at the Meeting of the National Association for the Promotion of Social Science in October, at Manchester.

The Howard Medal of 1879 (with 20*l.*) was awarded to Miss Beatrice A. Jourdan, for her essay on “ *The Improvements that have taken place in the Education of Children and Young Persons during the Eighteenth and Nineteenth Centuries.* ”

The subject of essays in competition for the Howard Medal of 1881 (with 20*l.* added) is to be—

“ On the Jail Fever, from the Earliest Black Assize to the Last Recorded Outbreak in Recent Times.”

The Society has had to lament the death of the following members since the last anniversary meeting :—

*Fellows.*

General Sir Thomas A. Larcom, Bart., K.C.B., F.R.S.

Samuel Wood, F.R.C.S.

The Right Hon. Lord Lawrence, G.C.B.

Sir Rowland Hill, K.C.B., F.R.S.

Alexander Robertson.

The Rev. Canon Ashwell.

James McClelland.

Harry Maple.

Julius Paul Beer.

Edward T. Blakely.

W. Tayler Dent.

The Right Hon. Lord Hampton, G.C.B.

Joseph J. Cohen de Lissa, F.R.G.S.

Henry Ashworth.

*Honorary Members.*

M. Michel Chevalier, Membre de l'Institut, Ancien Député et Sénateur.

Dr. Adolphe Ficker (President of the Imperial Central Statistical Commission at Vienna).

Dr. M. de Baumhauer (late Chief of the Statistical Bureau at The Hague).



The following list of Fellows proposed as Officers and Council of the Society for the Session 1880-81, is submitted for the consideration of the meeting:—

### COUNCIL AND OFFICERS FOR 1880-81.

#### PRESIDENT.

JAMES CAIRD, C.B., F.R.S.

#### COUNCIL.

Arthur H. Bailey, F.I.A.	Frederick Hendriks.
T. Graham Balfour, M.D., F.R.S.	Noel A. Humphreys.*
A. E. Bateman.	Prof. W.S. Jevons, M.A., LL.D., F.R.S.
G. Phillips Bevan.*	Robert Lawson.*
Stephen Bourne.	Professor Leone Levi, LL.D.
Edward William Brabrook, F.S.A.	John B. Martin, M.A.
Sir George Campbell, K.C.S.I., M.P.*	Richard Biddulph Martin, M.A.
J. Oldfield Chadwick, F.R.G.S.	Frederic John Mouat, M.D., F.R.C.S.
Archibald Hamilton, J.P.*	Francis G. P. Neison.
Hammond Chubb, B.A.	Robert Hogarth Patterson.
Hyde Clarke.	Henry D. Poehin.*
Lionel L. Cohen.	Frederick Purdy.
Major Patrick G. Craigie.	Sir R. W. Rawson, C.B., K.C.M.G.
Juland Danvers.	Thomas A. Welton.*
Robert Giffen.	Cornelius Walford, F.I.A.

Those marked \* are new Members of Council.

#### TREASURER.

Richard Biddulph Martin.

#### SECRETARIES.

Hammond Chubb.		Robert Giffen.
John B. Martin,		

#### FOREIGN SECRETARY.

Frederic J. Mouat, M.D.

The abstract of receipts and expenditure, and the balance sheet of assets and liabilities at 31st December, 1879, are subjoined, together with the report of the Auditors on the accounts for the same year:—

(I).—ABSTRACT of RECEIPTS and PAYMENTS for the YEAR ending  
31st DECEMBER, 1879.

RECEIPTS.		PAYMENTS.	
	£ s. d.		£ s. d.
Balance in } Bank, 31st } 192 14 7 Dec., 1878 }		Rent ..... £200 - -	
Less draft } not pre- } 10 - - sented ... }		Less sublet ..... 118 15 -	
————— £182 14 7			81 5 -
Balance of Petty Cash. 11 9 -		Salaries, Wages, and Pension ..... 346 12 6	
Balance of Adver- } tisement Cash ..... }	- 1 3	Journal, Printing ..... £588 6 9	
————— 194 4 10		„ Annual Index 5 5 -	
Dividends on 2,400%. New 3 per } Cents ..... }	64 12 6	„ Shorthand } Reporters } 23 2 -	
Subscriptions received for:—		„ Literary } Services } 48 3 6	
31 Arrears ..... £65 2 -		„ Bartholo- mew for } Maps ... }	7 - -
572 for the year } 1879 ..... }	1,201 4 -	————— 671 17 3	
16 in Advance..... 33 12 -		Advertising ..... 57 4 4	
————— 1,299 18 -		Ordinary Meeting Expenses ..... 20 12 -	
619		Library ..... 53 19 2	
6 Compositions ..... 126 - -		Stationery and Sundry Printing ... 70 4 8	
Journal Sales ..... £175 16 5		Postage and delivering Journals ... 59 6 -	
Journal, Advertise- } ments in ..... }	31 10 -	Fire and Lights ..... 8 10 3	
————— 207 6 5		Incidental Expenses ..... 46 8 6	
		Furniture and Repairs ..... 5 7 -	
		Statistical Dinner Club ..... 3 15 -	
		Grant with Howard Medal ..... 20 - -	
		Howard Medals ..... 1 10 6	
		————— 1,426 12 2	
		Purchase of 400%. New 3 per } Cents, at 95½ ..... }	381 - -
		————— £1,807 12 2	
		Balance at Drum- } mond's ..... }	80 13 1
		Balance of Petty Cash 3 16 6	
		————— 84 9 7	
		————— £1,892 1 9	
		—————	

(Signed)

“ J. O. CHADWICK,  
“ THOMAS A. WELTON, } Auditors.”  
“ G. PHILLIPS BEVAN, }

5th May, 1880.

## (II.)—BALANCE SHEET of ASSETS and LIABILITIES, 31st DECEMBER, 1879.

LIABILITIES.				ASSETS.			
	£	s.	d.		£	s.	d.
Per Accounts for—				Cash Balances .....	84	9	7
December number } of Journal .....	129	18	8	2,400 <i>l.</i> , New 3 per Cents, cost .....	2,283	6	5
Annual Index to ditto	5	5	—	Property (Estimated Value):—			
Stationery and } Printing .....	26	17	7	Books in Library .....	£1,000		
Advertisements.....	12	5	11	Journals in Stock .....	500		
Miscellaneous, say ...	63	13	3	Furniture and Fixtures	500		
			238	—	2,000	—	—
Balance in favour of the Society...	4,194	17	7	Arrears of Subscriptions reco- verable (say) .....	65	2	—
	£4,432	18	—		£4,432	18	—

(Signed)

“ J. O. CHADWICK,

“ THOMAS A. WELTON,

“ G. PHILLIPS BEVAN,

} *Auditors.*”

5th May, 1880.

(III.)—BUILDING FUND (ESTABLISHED 10th July, 1873), BALANCE SHEET,  
31st DECEMBER, 1879.

LIABILITIES.				ASSETS.			
	£	s.	d.		£	s.	d.
Amount of Fund from last Account	156	15	5	1879. Invested as per last Account in Metropolitan Consolidated 3½ per Cent. Stock, in the name of the Treasurer, R. B. Martin—			
Dividends Received and Invested } during the year 1879 .....	6	12	8	£153 12 11 cost	156	15	5
				15 July. Purchased	5	2	1
				6 Nov. Ditto .....	1	5	8
	£163	8	1	Total.....£160	—	8	” £163 8 1

(Signed)

“ J. O. CHADWICK,

“ THOMAS A. WELTON,

“ G. PHILLIPS BEVAN,

} *Auditors.*”

5th May, 1880.

## “ STATISTICAL SOCIETY,

“ 5th May, 1880.

## “ AUDITORS’ REPORT FOR 1879.

*“The Auditors appointed to examine the Treasurer’s Accounts for the Year 1879,*

## “ REPORT:—

*“That they have carefully compared the Entries in the Books with the several Vouchers for the same, from the 1st January to the 31st December, 1879, and find them correct, showing the Receipts (including a Balance of 194l. 4s. 10d. from 1878) to have been 1,892l. 1s. 9d., and the Payments (including the purchase of 400l. New Three per Cents), 1,807l. 12s. 2d., leaving a Balance in favour of the Society of 84l. 9s. 7d. at 31st December, 1879.*

*“They have also had laid before them an Estimate of the Assets and Liabilities of the Society, the former amounting to 4,432l. 18s. -d., and the latter to 238l. -s. 5d., leaving a Balance in favour of the Society of 4,194l. 17s. 7d.*

*“The amount standing to the credit of the Building Fund, at the end of the year 1879 was 160l. -s. 8d., Metropolitan 3½ per Cents, invested in the name of the Treasurer, R. B. Martin, Esq.*

*“They further find that at the end of the year 1878 the number of Fellows on the list was 746, which number was diminished in the course of the year to the extent of 52, by Deaths, Resignations, and Defaulters, and that 89 new Members were elected, leaving on the list, on 31st December, 1879, 783 Fellows of the Society.*

(Signed)

“ J. O. CHADWICK,	} Auditors.”
“ THOMAS A. WELTON,	
“ G. PHILLIPS BEVAN,	



Sir R. W. RAWSON, C.B., K.C.M.G., who temporarily occupied the chair, said, according to precedent, I have to submit a motion, in the absence of Mr. Brassey, whom, however, we expect to see before the meeting is over. I have to move "that the report of the Council, the abstract of receipts and payments, the balance sheet of assets and liabilities, and the report of the Auditors for 1879, be adopted, entered on the minutes, and printed in the *Journal*." I can scarcely suppose that there will be any hesitation on the part of the members to adopt the report, seeing that it gives so full and so favourable an exposition of the condition of the Society. Being one of the oldest members—although I see two or three who preceded me, and as the Society is approaching its half-centenary, and as I am approaching my half-century's connection with it, it is a matter of very great gratification to me that I have the opportunity of presiding to-day, and of expressing my own satisfaction, which I trust will be reciprocated by the other members present, as to the position of the Society, its usefulness, and its sound financial position. The subject of statistics is not one of the most popular. We cannot compete with the Geographical Society, we cannot compete with the Horticultural and other societies which are attractive upon other grounds, but I think we may say that certainly during this last half-century the Statistical Society has done most valuable and substantial work, and that every year its value is increasing. The importance of its papers, the large views of economic science and of social science embraced by the authors in our papers, cannot fail to render it of great value. (At this point Mr. Brassey, who was warmly received, entered the room.) I am very happy to welcome our President, and as he has come in, I will ask him to take the chair. I was just proposing the adoption of the report of the Society. I had anticipated that our President would have moved it, but I hope he will join with me in recommending it to you for adoption. As a much older member of the Society than the President, and as one of the oldest members, I will say, what I believe he will concur with me in maintaining, that the Society during the last half-century has done a valuable and important work, is doing the same now, and is increasing in power and usefulness year by year, both by its publications, by its works, by bringing together men who study these subjects, and are interested in them, and by bringing a variety of views to light for examination and discussion. I believe we may hope that the next half-century will advance in an increasing proportion. With these few observations, I shall vacate the chair, and request our President to take it.

The PRESIDENT having taken the chair, said, I will call upon Mr. Bailey to second the adoption of the report.

Mr. A. H. BAILEY: Mr. President, I had hoped that your entrance into the room would have spared me the necessity of troubling the Society with any remarks. However, I have great pleasure in seconding the motion which Sir Rawson Rawson has moved, for the report is so thoroughly satisfactory, and enters into the details so fully, that it will be unnecessary for me to take up

the time of the Society at any length. I would merely remark that I am glad to see that the subject of Vital Statistics has occupied more of the attention of the members than has been the case in one or two previous sessions. I have thought sometimes that there has been some risk of this Society drifting into a political Society, seeing that the subjects which excite the greatest amount of attention here are those which are expected to come on for discussion in the Houses of Parliament. I think that is a risk which this Society should avoid. With regard to the other parts of the report, we all very much regret that we have not seen Dr. Farr at these meetings for some time past, and, from what I have heard lately, unless his health is much re-established, we shall not see him at these meetings very often. I am very glad that the Queen has, through the Government, bestowed an honorary distinction upon him. With regard to house accommodation, that subject has certainly engaged the attention of the Council for some time. We all see that it is very desirable we should have better rooms than these, but the difficulties in the way of obtaining them are very great, and they stare us in the face whichever way we turn. We want a building, or rooms of considerable dimensions in a convenient situation; but at present the Council have not seen their way to obtain what we require. Our efforts in that direction will be continued. With these few observations, I have much pleasure in seconding the motion moved by Sir Rawson Rawson.

The PRESIDENT: Gentlemen, I hope you will allow me to say a few words in support of this resolution. I am sure we shall agree that the report is, as it has been stated by previous speakers, a very satisfactory report. When we turn to the financial statement, which is set before us in a concise and lucid manner, well worthy of the Statistical Society, we see the state of our affairs as regards our finances, upon which, I will undertake to say, a good many learned bodies would look with envy. We are growing year by year a wealthier Society, and have, therefore, greater ability to carry forward the work for which this Society was especially constituted. Well, gentlemen, in former years, when I was giving much attention to labour questions, I appreciated very highly indeed the practical usefulness of the work done by the Society in the particular field in which I was engaged; and I am quite sure that those who have been working in other departments or other branches of inquiry have found, as I have found on reference, the admirable information published annually by this Society, and included in its publications, to be extremely valuable. Well, gentlemen, under those circumstances, when you did me the honour to invite me to be your President, I accepted the invitation with much gratitude, and with a high sense of the honour done me, and with a most earnest desire to be as useful as I could to the Society; but events have gone against me. I was taken abroad in the early part of the year by circumstances which I need not narrate—by illness in my family—which necessitated my absence in January and February. Then came your March meeting, which I was unable to attend, in consequence of my duties in connection with the business of the House

of Commons, and I need not recapitulate the incidents which have since occurred—the arduous electioneering contest in which we were engaged, and my subsequent engagement with the present Board of Admiralty. All these things have gone against me, and made me unable to do what I should have earnestly desired to do for the Society; but, gentlemen, this report shows you that the Society is well able to take care of itself; that it is not the creature of a President, but that it has living and vital force which is independent of any action on the part of its President. At the same time I am sure we all rejoice very much indeed that we shall have during the coming year the extreme advantage of having for the President of the Society Mr. Caird. We all know the eminent position that gentleman holds in matters statistical, and especially in relation to agricultural inquiry, which, as we all know, is one of the most important and anxious subjects with which the Government and those who are concerned in statistical affairs will have to deal. I am quite sure that Mr. Caird's services as President of this Society, and more especially in connection with agricultural statistics, will be of extreme value. It has been said that we are still suffering from the want of adequate house accommodation. I regret that, and yet we all know that the Society has managed to do pretty well, even with its present apartments. We cannot make a great effort without union in this matter, and of course you all know very well that the Society of Civil Engineers, which might have helped very materially, is so perfectly satisfied with its present position, that it is not inclined to co-operate in any joint effort such as that proposed by Dr. Siemens. I cannot doubt, however, that the noble offer which Dr. Siemens has made, and which is still open to consideration, must sooner or later stimulate action in the direction in which we desire to move. It may not be this year or next, but sooner or later, I am quite sure, with such a noble offer before us, we shall be able to do something with which we shall have reason to be satisfied. Gentlemen, I thank you very much for the kind way in which you have always received me, and I thank you also very much indeed for having elected me for a time your President, and I have only now to put the motion for the adoption of the report to the meeting.

The motion was carried unanimously.

Mr. J. O. Chadwick and Mr. John Finch were appointed to be scrutineers, and a ballot was then taken.

The scrutineers having presented their report, the President announced that the gentlemen named in the printed list submitted to the meeting were unanimously elected as the President, Council, and Officers for the ensuing year.

The PRESIDENT then announced the title of the Howard Medal Essay for 1881, viz., “On the Jail Fever, from the Earliest Black Assize to the Last Recorded Outbreak in Recent Times,” and stated that five essays had been received in competition for the Howard Medal for 1880.



Mr. JAMES HEYWOOD, F.R.S.: I have been requested to move a vote of thanks to the President and the retiring officers for what they have done, and I beg to mention in regard to our President that he has done a very popular thing, in my opinion, in respect to the invitation to the South Kensington Museum, in having included an invitation to a lady with each gentleman, so that every gentleman will be able to take a lady, and this is greatly increasing the popularity of the gathering. I have great pleasure in moving this vote, for the Council have a great deal to go through, and you see by the report what they have done. The motion is: "A vote of thanks to the retiring President, Council, and Officers for their services during the past year, and to the Chairman for presiding on the present occasion."

Dr. W. A. GUY, F.R.S.: I have been requested to second the motion, and I do so with great pleasure. I have been a constant witness of what has been done by the Council and Officers of the Society, and a witness to the kind attention you, Sir, have given us on every occasion on which you have been present. I am sure, Sir, we are extremely obliged to you for what you have done on our behalf. I think I have heard it said that gratitude is an expectation of favours to come. I am not going to ask you, Sir, so much for a personal favour, as that in the position which you now occupy, you will give your favourable consideration to a matter which must some day come before the Government, whatever it may be, and that is for providing house accommodation for this Society, or what would be better still, for several societies. We occupy a peculiar position in relation to the present Ministry, which includes two Presidents of this Society, Mr. Shaw Lefevre and yourself. Need I say, Sir, how hard we have recently found it to get any sort of accommodation for this Society. We have gone right and left, east and west, and have found it almost impossible to provide ourselves with a decent house. I have ventured on a former occasion to point out (in a paper which I shall have the pleasure of republishing) that our kings and princes, in times past, have done honour to themselves in doing honour to science; and there are many precedents in favour of scientific societies being properly housed by the assistance of the Government, which it must be hard to ignore. I hope, therefore, that we may have the advantage of your favourable appreciation of this matter as far as it may be consistent with your official duty: beyond that, I am sure you will never go. I wish also to state that just before we came together, the House Accommodation Committee held a meeting at which they sanctioned certain suggestions which I offered them for the improvement of the premises here, hoping that if we get the permission, as we hope to do, to make some improvements in our rooms, and also to expand our short tenure, we may for the time being be very comfortable, and be able to remain in these rooms long enough for the time to arrive when the Government shall really consider the question carefully. We know that it is an honour to any Government to make provision, as in times past, for Science. You, Sir, have spoken of the claims of this Society. I cannot conceive any society



with a higher claim to Government assistance than this Society has. Every paper submitted to us on any important statistical question is really and truly saving the Government of the country the necessity for some investigation which would entail expense upon it; and I think I may venture to say, we do it as well as if the Government appointed the writers of the papers themselves. We command the best talent; things are explained in the best way; and we may say that the constant aim of the Society is to do that work which it is the duty of the Government itself to do; and on that ground we fairly claim to receive for the Society by itself and of itself, your favourable consideration. I will also say that there are many other societies which might be associated with us under the same roof with the assistance of the Government; but there is no reason why, because other societies do not recognise this, we should be homeless. I have taken up more time than I desired, or I should have liked to refer to the present state of health of our dear friend, Dr. Farr. I won't detain the meeting any longer; but ask all present cordially to support the motion which I beg to second.

The motion was carried unanimously.

The PRESIDENT: Gentlemen, I thank you very much for the kind speeches which have been delivered, and for the vote of thanks; and I return that expression of gratitude even more on behalf of the Council and Officers, because I think they may fairly claim a larger share of your gratitude than I can justly claim. I shall always look back to my connection with this Society with the greatest possible pride and interest, and I can assure Dr. Guy that if it should be in my power to promote the plan which he has sketched in his speech, I shall be very glad to do so. It is certainly an odd circumstance that two members of the Board of Admiralty should be Fellows of the Statistical Society. Certainly the statistics of the Admiralty ought to be first rate, and I think we ought to be warmly in favour of the Statistical Society. Well, Sir, if this Society could accept translation to one of the dockyards, or to some distant island, like Ascension, I would promise to try and do something for them, but as matters are we cannot help you much, because the control of the Admiralty ends with the shore, and we cannot do what we like. I fully support what Dr. Guy has said as to the nature of the work done by the Statistical Society. It is an essential work which has contributed to the good government of the country, and work which if it were not done by the able and laborious officers of this Society, must be done by the Government of the country, and at the expense of the country. I am quite sure it could not be more efficiently done, for Mr. Giffen is a model of what a Government official ought to be. In his particular department he is unrivalled, and no one knows more than I do how greatly the Government of the country is indebted to his researches, which extend over a very wide field indeed. Mr. Giffen was, I daresay, very much astonished to find that his evidence was most valuable as to our colonial defences, and that the Admiralty at once rushed to him as their most competent adviser on the subject. That shows what is done by those who make them-

selves masters of this subject. I think our prospects in the future must be considered to be bright and prosperous. I cannot believe that the Government of the country, whatever its complexion may be, will go on year by year ignoring the existence of the Society; and certainly the precedent which has been set by receiving a number of other societies—which I may undertake to say do not do a more useful work than the Statistical Society—is one that we may claim to make use of on our side when the opportunity arrives. I thank you once more for your kind vote of thanks, and I can only say that I have had great pleasure in being present on this occasion.

Mr. CHUBB: As one of the honorary secretaries, and included in the vote which our President has acknowledged, I should like to say a word or two. First of all, I would express on the part of the secretaries, our great regret that we shall not have to work for two years under Mr. Brassey. We were looking forward to working under him for two years, and to have his active interest in the institution. A remark was made in the early part of the meeting, that this Society cannot necessarily be a very popular one. Well, if popularity is expressed in the desire to know what we are about, I think we have evidence of it now, and I would especially refer, on behalf of one of my colleagues, to the increased circulation of the *Journal*. I think that is an evidence not only of the popularity of the Society, but also of the ability and judgment of Mr. Giffen, upon whom the responsibility of issuing the *Journal* rests. It is more prosperous than it has ever been before. I would also refer to another colleague, Professor Jevons, who now retires from the secretaryship. I always felt it a pleasure to work with him, and I am sure that those who have done so, will never forget the pleasant association which that work has involved. It is a satisfaction that Mr. Martin has been good enough to add his name as one of the secretaries for the future. I have only now to thank you for the compliment which you have paid us.

The PRESIDENT: We now adjourn, gentlemen, until the 16th November, with our concluding meeting of the session taking place at South Kensington this evening. I am quite sure that if the evening is less statistical, it will have other charms.

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*A SURVEY of INDICTABLE and SUMMARY JURISDICTION OFFENCES in ENGLAND and WALES, from 1857 to 1876, in QUINQUENNIAL PERIODS, and in 1877 and 1878. By LEONE LEVI, ESQ., F.S.A., LL.D., &c., &c.*

[Read before the Statistical Society, 16th March, 1880.]

CONTENTS :

	PAGE		PAGE
I.—Introductory .....	423	XIII.—Crime in Relation to Sex .....	436
II.—Police Force .....	425	XIV.—Character of Criminals..	437
III.—Crimes Committed.....	425	XV.—Proportion of Acquittals to Committed for Crime .....	438
IV.—Apprehensions for Crime...	426	XVI.—Punishment of Crime ....	438
V.—Criminal Proceedings.....	427	XVII.—The Punishment of Death	440
VI.—Proportion of Apprehen- sions to Population.....	428	XVIII.—Commitment to Prisons..	443
VII.—Classification of Crime ....	429	XIX.—Recommittals .....	443
VIII.—Causes of Crime.....	433	XX.—Age of Prisoners.....	444
IX.—Locality of Crime .....	434	XXI.—Education of Prisoners..	445
X.—Crime and Density of Population .....	434	XXII.—Nationalities of Prisoners	446
XI.—Crime and Occupation ....	435	XXIII.—Conclusions .....	446
XII.—Crime in Relation to Ig- norance, Savings, and Pauperism .....	435	APPENDIX. Tables A to N .....	447

*I.—Introductory.*

THE Statistics of Crime in England and Wales have frequently engaged the attention of the Statistical Society, and to their elucidation many pages of its *Journal* have been from time to time devoted. Sir Rawson Rawson; the late Mr. Fletcher, and Mr. Neison; Dr. Guy, Mr. Hammick, and others, laid before the Society communications of great value, both in illustration of the progress of public morals, and as an evidence of the uniformity of the human will. But the materials were not hitherto available for any complete survey of the crimes and offences committed. It is only since the passing of the Police Act in 1857, 19 and 20 Vict., cap. 69, which made provision for the presentation of annual returns of all criminal proceedings, the initiation of which is due to the lessons of the International Statistical Congress,\* that we

\* At the International Statistical Congresses held at Brussels in 1853 and 1855, the defective character of our criminal statistics became so apparent, that, on the 3rd October, 1855, I wrote a letter on the subject to Mr. Fonblanque, of the statistical department of the Board of Trade, my colleague at the congress, urging the collection of judicial statistics. This letter was presented to both Houses of

have had a complete system of judicial statistics. Notwithstanding, however, the labours of that Congress on Judicial Statistics, no means are yet afforded for a correct comparison of the criminal statistics of different countries; no general consensus having been obtained on the meaning and classification of crimes. The legal appreciation of certain acts being different, the numerical expression of the same does not admit of comparison. Twenty-two years of the judicial statistics of England and Wales are now before me, and confining myself to these, I venture to think that their leading facts and results may prove both interesting and valuable.

Though remarkable for great oscillations between depression and excitement, the last twenty-two years have been highly favourable to the economic condition of the people. Wealth has greatly increased in amount, and is much more diffused. Pauperism has diminished. Much has been done for the promotion of health and education among the people. The taxes on most of the necessities of life have been removed. The cost of living has been by no means high. Altogether, there is reason to think that the leading operating causes of crime have been less intense than in former years. At the same time, a great revolution has taken place in criminal jurisprudence. Whilst the criminal code has become less vindictive and more corrective, a large number of offences, formerly tried by sessions, are now dealt with by magistrates with summary jurisdiction, many new offences have been created by statute, and what is still more important, a higher sense of public order and morals tends to bring to light offences which were formerly passed over as too trivial for punishment.

The judicial statistics of England and Wales date from 1857. It will be convenient to take the first twenty years, divided into four quinquennial periods; compare the same with the population, according to the census of 1851, 1861, and 1871, and after ascertaining the average result of the whole period of twenty years, compare the same with the years 1877 and 1878 in relation to the population of these years respectively, and examine wherein there is progress, and wherein retrogression.

Parliament (see House of Lords' Papers, 541 of 1856). On the 12th November, 1855, I read a paper before the Law Amendment Society on "Judicial Statistics," and on the 3rd March, 1856, Lord Brougham, its president, moved resolutions on the subject in the House of Lords, in accordance with its suggestions. Subsequently I drafted a Bill for the collection of judicial statistics, which Lord Brougham introduced in the House of Lords, but the necessity of proceeding with it ceased when the Secretary of State provided for the same in the Bill to render more effectual the police in counties and boroughs in England and Wales in 1856. The judicial statistics for Ireland were commenced in 1863, and the judicial statistics for Scotland in 1868-69.



II.—*Police Force.*

The maintenance of a sufficient police force being no longer optional in counties and boroughs, some increase is observable in the proportion of police to the population.

Years.	Population.	Police.	Proportion of Police to 1,000 Persons.
	Average.	Average.	Average.
1857-61 .....	19,687,000	20,442	1'03
'62-66 .....	20,830,000	22,922	1'10
'67-71 .....	22,174,000	25,933	1'16
'72-76 .....	23,652,000	28,916	1'22
1857-76 .....	21,586,000	24,553	1'13
1877 .....	24,547,000	30,006	1'22
'78 .....	25,165,000	30,623	1'21

An increase of 7 per cent. in the police force in proportion to population is of importance. To judge, however, of the means for the detection and repression of crime, space as well as population is an important element, and in both the greatest diversity obtains alike in boroughs and counties. In 1878, whilst in Manchester there was 1 constable to 5 acres, in Newcastle there was 1 in 26 acres. Whilst in the county of Lancaster there was 1 policeman to 981 acres, in the county of Northumberland the proportion was 1 to 7,957 acres. In Manchester there were 442 persons to a constable; in Liverpool, 548; and in Newcastle, 640. But other elements must be taken into account in estimating the sufficiency of the police. Race and occupation, education and religion, poverty and wealth, affect to a large extent the relative criminality of boroughs and counties, and by that must the proportion of police be greatly regulated.

III.—*Crimes Committed.*

Some data, though I fear an imperfect one, are afforded of the amount of crime committed by the number of indictable offences reported to the police. These do not include offences subject to summary jurisdiction, and, moreover, many crimes may be committed which elude the vigilance of the police. Nevertheless, substantially the crimes reported represent the amount of crime committed in the country, and the average results are as follows:—

Years.	April to June.	July to September.	October to December.	January to March.	Total.	Per 1,000 Persons.
1857-61 ....	12,471	12,589	14,397	14,215	53,674	2·72
'62-66 ....	12,039	12,135	14,031	13,651	51,658	2·47
'67-71 ....	12,570	12,512	14,752	14,199	54,036	2·43
'72-76 ....	10,841	11,061	12,604	12,296	46,718	1·97
1857-76 ....	11,980	12,074	13,696	13,189	51,521	2·39
1877 .....	11,944	11,892	13,024	13,083	50,843	2·07
'78 .....	12,625	11,980	15,073	14,387	54,065	2·14

Throughout the period there has thus been a marked diminution of crime when compared with the population. Divided according to season, it will be seen, that of the total number of crimes, 23·50 per cent. were committed in spring, 23·50 per cent. in summer, 26·60 per cent. in the autumn, and 26·40 per cent. in winter. The influence of the season is not so marked as one might imagine, except that crimes against the person are more numerous in summer than in winter, and crimes against property more numerous in winter than in summer.

#### IV.—*Apprehensions for Crime.*

Nor do the seasons seem to affect materially the number of apprehensions for crime, which in the same periods of years and seasons were as follows :—

Average Years.	April to June.		July to September.		October to December.		January to March.		Total.	
	—	Crimes to Persons.	—	Crimes to Persons.	—	Crimes to Persons.	—	Crimes to Persons.	—	Crimes to Persons.
1857-61	6,812	1·83	6,735	1·86	7,335	1·93	7,544	1·90	28,436	1·88
'62-66	6,891	1·74	7,068	1·71	7,314	1·65	7,646	1·83	28,920	1·78
'67-71	6,661	1·88	6,646	1·88	7,039	2·01	7,147	2·07	27,494	1·96
'72-76	5,418	2·00	5,520	2·00	5,721	2·13	5,791	2·17	22,452	2·08
1857-76	6,445	1·85	6,492	1·85	6,852	1·99	7,032	1·87	26,821	1·92
1877 ....	5,708	2·09	5,734	2·07	6,133	2·12	5,970	2·19	23,545	2·16
'78 ....	6,005	2·10	5,534	2·16	6,482	2·32	6,641	2·38	24,062	2·24

The number of persons apprehended for indictable offences is larger in the winter than in the autumn, whilst summer is decidedly the lightest quarter. The number of persons apprehended, it will be seen, has steadily diminished, but if we compare it with the number of crimes reported to have been committed, all reasons for congratulation are at an end. Whilst in the twenty years there were 1·92

crimes for every person apprehended, in 1877 the number of crimes to persons was 2·16, and in 1878 2·24. Is there a greater want of vigilance, or are there any other defects in the means of detection and repression? The proportion of crimes committed to persons apprehended differs materially in the different classes of crimes, as follows:—

Years.	Crimes against the Person.	Crimes against Property, with Violence.	Crimes against Property, without Violence.	Malicious Offences against Property.	Offences against the Currency.	Other Crimes.
1857-61....	0·98	2·03	2·19	1·10	1·10	0·89
'62-66....	0·97	1·83	2·05	1·10	1·11	0·86
'67-71....	0·96	2·07	2·26	1·09	1·09	0·85
'72-76....	0·97	2·19	2·47	1·12	1·15	0·92
1857-76....	0·97	2·03	2·24	1·10	1·11	0·88
1877 .....	0·90	2·16	2·61	1·03	1·13	0·95
'78 .....	0·93	2·93	2·65	0·99	1·13	0·92

The greatest excess in the number of crimes committed in proportion to the number of persons apprehended, exists in connection with crimes against property, with and without violence, probably arising from the insufficient interest and unwillingness of the parties injured to assume the onerous task of prosecuting the offenders. With the institution of a public prosecutor, this disparity may henceforth be lessened. A crime is an offence against the State, against the majesty of the law, and it is befitting that the State should vindicate its rights.

#### V.—*Criminal Proceedings.*

If we now follow the results of the preliminary proceedings as regards the persons apprehended for indictable offences, we shall see what proportion are discharged from want of sufficient evidence or other causes, and how many are finally committed for trial. The numbers were as follows:—

Years.	Total Number Apprehended.	Number Discharged.	Number Bailed.	Number Committed for Trial.	Per Cent. Committed.	Proportion per 1,000.
1857-61	28,436	10,611	1,633	16,084	56·56	0·81
'62-66	28,920	8,812	1,713	18,395	63·61	0·88
'67-71	27,494	8,533	1,716	17,245	62·73	0·77
'72-76	22,452	6,781	1,775	13,996	62·07	0·59
1857-76	26,825	8,684	1,709	16,430	61·24	0·76
1877 .....	23,545	6,950	1,976	14,609	62·04	0·59
'78 .....	24,062	5,732	1,740	15,039	62·50	0·59

Two important facts are here observable: first, that of the number of persons apprehended for crime, about 62 per cent. are committed for trial, and 38 per cent. discharged; the discharges having greatly diminished in late years; and second, that in proportion to population, the number of committals for trial has diminished from 0·76 to 0·50 per 1,000, or in the proportion of 22 per cent.

#### VI.—*Proportion of Apprehensions to Population.*

Hitherto we have dealt with indictable offences only, but a much larger number of offences are committed subject to summary jurisdiction. The total number of persons so proceeded against summarily was as follows:—

Years.	Average Number.	Proportion per 1,000.
1857-61 .....	389,142	19·7
'62-66 .....	442,493	21·2
'67-71 .....	510,175	23·0
'72-76 .....	616,731	26·0
1857-76 .....	489,635	22·7
1877.....	653,053	26·8
'78.....	676,723	26·8

It will thus appear that there has been a decided increase in the total number of persons brought before the magistrates for offences subject to summary jurisdiction; but this increase is greatly modified by three important circumstances; first, that in a very large number of cases the same individuals come again and again before the courts; and second, that a large proportion of the cases so dealt with by magistrates consists of offences of a very light character, partaking more of the nature of insubordination and lawlessness than of moral turpitude. In England, including indictable and summary jurisdiction offences, there were in all 700,835 cases brought before the courts in 1878, or in the proportion of 27·8 per 1,000. In Scotland, the total number of persons charged was 138,612, or in the proportion of 41·25 per 1,000. In Ireland, the total number of persons committed for trial and under summary jurisdiction in 1878 was 273,447, or 51·10 per 1,000 of the population. In France, in 1876, the total number of persons charged with crime brought before the correctional tribunals and tribunals of simple police, was 716,937, which, with a population of 37,900,000, gives a proportion of 19·38 per 1,000.

Much may be said against the expediency of constantly in-



creasing the number of offences, especially involving imprisonment. The table appended (Appendix F) shows that within the last six years since the passing of the Education Act as many as 132,000 offences under that Act came before the magistrates; the number in 1878 having exceeded 40,000. Public opinion must sanction any new legislation before it can be enforced with advantage. The consequences of imprisonment on the character of the offender must ever be taken into account in adding to the list of offences (already too heavy), which subject many otherwise useful members of society to the police court and prison discipline.

### VII.—*Classification of Crime.*

A good classification of crime would be a great aid in studying the working of our criminal jurisprudence. The present classification of our judicial statistics into six classes is neither sufficiently explicit nor in accord with the gradation of the moral character of the offences, nor in harmony with any well-marked category. A better classification would be that followed in the proposed criminal code by Mr. Justice Stephen, viz., offences against public order, internal and external, including treason, riots, conspiracy; offences against the administration of justice, including corruption and disobedience, misleading justice, escapes, and rescues; offences against religion, morals, and public convenience, including disturbing public worship, unnatural offences, nuisances; offences against the person and reputation, including murder, bodily injuries, assaults, rape, bigamy, and defamatory libels; and offences against rights of property, including theft, fraud, robbery, burglary, forgery, coining, arson, fraudulent debtors, &c.

If we classify the number of persons committed for trial in the manner thus suggested, the following is the result:—

Offences.	1857-61.	1862-66.	1867-71.	1872-76.	1857-76.	1877.	1878.
<i>Against Public Order.</i>							
Riot, breach of the peace.....	126·8	189·2	147·8	68·0	132·9	46	148
<i>Against the Administration of Justice.</i>							
Perjury .....	83·0	73·4	96·0	88·4	85·2	108	71
<i>Against Religion and Morals.</i>							
Sacrilege .....	9·6	18·0	20·6	10·8	14·6	14	12
Attempts to procure mis- carriage .....	9·6	5·8	7·8	5·6	7·2	3	11
Concealing births .....	104·4	130·0	108·4	106·4	112·3	81	83
Sodomy .....	36·6	43·8	38·4	34·0	37·0	62	42
Attempts to commit sodomy ..	62·8	73·6	69·8	62·0	67·0	75	67
Rape .....	123·6	150·4	143·6	158·4	144·0	168	140

Offences.	1857-61.	1862-66.	1867-71.	1872-76.	1857-76.	1877.	1878.
Assault, with attempt to ravish	134'0	259'6	278'2	292'0	240'9	318	317
Carnally abusing young girls..	14'0	15'8	11'8	1'6	10'8	4	9
Abduction .....	3'8	8'2	5'6	9'2	6'7	5	5
Bigamy .....	88'6	83'4	76'6	98'6	86'8	79	82
Child stealing.....	4'6	4'4	5'6	5'6	5'0	4	1
Keeping disorderly houses ....	121'8	85'6	69'8	73'8	87'7	67	105
	713'4	878'6	836'2	858'0	820'0	880	874
<i>Against the Person and Reputation.</i>							
Murder .....	63'8	69'0	64'6	68'4	66'4	70	59
Attempts to murder .....	28'6	35'6	35'4	32'4	33'0	32	48
Shooting .....	236'2	142'0	136'0	156'2	167'6	170	150
Manslaughter .....	221'8	272'6	247'6	243'0	246'5	244	224
Assaults .....	901'0	1149'6	1007'6	1060'4	1029'6	1,150	1,084
	1451'4	1668'6	1491'2	1560'4	1543'1	1,676	1,565
<i>Against Rights of Property.</i>							
Burglary .....	483'0	510'2	474'4	247'4	427'5	353	324
Housebreaking .....	580'4	716'6	634'0	414'0	586'2	422	453
Breaking into dwelling houses	40'4	37'2	56'0	28'6	40'5	29	37
„ shops .....	196'0	270'6	257'4	223'0	236'7	316	423
Misdemeanor, with attempt } to commit .....	40'4	61'4	43'6	28'6	47'0	44	46
Robbery .....	413'0	435'6	376'0	288'8	378'3	233	278
Cattle, horse, and sheep } stealing .....	243'2	206'0	214'0	156'0	204'5	145	204
Larceny .....	9762'6	10929'4	10227'0	8374'0	9823'2	8,591	8,500
Stealing .....	403'0	291'0	273'2	164'4	282'9	174	200
Embezzlement .....	423'8	526'6	410'8	300'6	417'2	290	301
Stealing letters .....	45'8	29'0	32'6	35'6	35'7	37	44
Receiving stolen goods .....	461'2	651'2	584'4	420'2	529'2	415	480
Frauds .....	829'8	836'0	921'8	765'0	838'1	971	970
Setting fire .....	133'2	240'8	171'6	90'2	158'9	90	117
Killing cattle .....	18'6	24'0	16'4	16'4	18'8	13	8
Destroying manufactures .....	5'4	5'8	4'8	6'4	5'6	3	—
Attempts to commit arson ....	2'0	5'8	3'4	3'8	3'7	5	3
Forging bank notes .....	23'0	6'0	—	—	—	—	—
„ instruments .....	174'0	173'6	174'6	160'6	170'7	164	243
Coining .....	618'8	448'6	366'4	225'0	414'7	202	232
Game and fish .....	105'2	92'8	85'6	49'8	58'3	59	91
	15002'8	16488'2	15328'0	12018'4	14677'7	12,576	12,956
Others* .....	447'2	459'6	546'2	543'0	532'8	604	756
Total .....	17824'6	19757'6	18445'4	15136'2	17791'7	15,890	16,370

\* Several offences belonging to each class not given in detail for brevity.

A classification of the cases subject to summary jurisdiction of a similar character to the foregoing, gives the following results:—

Offences.	1857-61.	1862-66.	1867-71.	1872-76.	1857-76.	1877.	1878.
<i>Against Public Order.</i>							
Breach of the peace .....	9,539	10,570	15,066	20,402	13,769	20,749	20,709
<i>Against the Administration of Justice</i> .....	—	—	—	—	—	—	—
<i>Against Religion and Morals.</i>							
Bastardy .....	5,071	4,944	4,237	3,436	4422'0	4,179	4,360
<i>Against the Person.</i>							
Assaults .....	79,423	90,313	92,271	99,299	90276'5	94,565	92,659
<i>Against Rights of Property.</i>							
Larceny .....	39,234	45,164	45,869	41,232	42874'7	41,645	43,651
Malicious offences, embezzlement, &c. ....	15,561	19,328	21,689	22,731	19827'2	24,213	24,450
	54,795	64,492	67,558	63,963	62701'9	65,858	68,101
<i>Against Public Convenience.</i>							
Drunkenness .....	84,351	100,279	121,709	185,872	123052'7	200,184	194,549
<i>Against Local Laws and other Acts.</i>							
Vagrancy .....	28,108	29,144	38,209	37,856	33329'2	41,894	43,764
Local laws, &c., &c. ....	127,855	142,751	170,994	205,943	162011'0	225,627	252,631
	155,963	171,895	209,203	243,799	195340'0	267,521	296,395
Total .....	389,142	442,493	510,175	616,731	489645'2	653,053	676,773

If we now unite all crimes and offences, whether indictable or not, under the same classification, we have the following results :—

Offences.	1857-61.	1862-66.	1867-71.	1872-76.	1857-76.	1877.	1878.
<i>1. Against Public Order—</i>							
Indictable .....	127	189	148	68	133	46	148
Summary .....	9,539	10,570	15,066	20,402	13,769	20,749	20,709
	9,666	10,759	15,214	20,470	13,902	20,795	20,857
<i>2. Against the Administration of Justice—</i>							
Indictable .....	83	73	96	88	85	108	71
Summary .....	—	—	—	—	820	—	—
<i>3. Against Religion &amp; Morals—</i>							
Indictable .....	713	879	836	858	820	880	874
Summary .....	5,071	4,944	4,237	3,436	4,422	4,179	4,360
	5,784	5,823	5,073	4,294	5,242	5,059	5,234
<i>4. Against the Person—</i>							
Indictable .....	1,451	1,669	1,491	1,560	1,543	1,676	1,565
Summary .....	79,423	90,313	92,271	99,299	90,276	94,567	92,659
	80,874	91,982	93,762	100,859	91,819	96,241	94,224

Offences.	1857-61.	1862-66.	1867-71.	1872-76.	1857-76.	1877.	1878.
5. <i>Against Rights of Property</i>							
Indictable .....	15,003	16,488	15,328	12,018	14,677	12,576	12,956
Summary .....	54,795	64,492	67,558	63,963	62,702	65,858	68,101
	69,798	80,980	82,886	75,981	77,379	78,434	81,057
6. <i>Against Public Decorum—</i>							
Summary .....	84,351	100,279	121,709	185,872	123,053	200,184	194,549
7. <i>Against Local Laws and</i> <i>other Acts—</i>							
Summary .....	165,502	182,465	224,269	364,201	213,109	288,053	317,104
8. <i>Other Indictable Offences—</i>							
Indictable .....	448	460	546	543	833	604	758
Total .....	406,967	462,151	528,489	731,907	511,354	668,943	693,145

Compared with the population at the respective time, the proportion per 1,000 is as follows:—

Offences Against	1857-61.	1862-66.	1867-71.	1872-76.	1857-76.	1877.	1878.
Public order .....	0·40	0·51	0·69	0·86	0·64	0·84	0·82
Administration of justice.....	—	—	—	—	—	—	—
Religion and morals .....	0·29	0·27	0·23	0·18	0·24	0·20	0·20
The person .....	4·10	4·41	4·23	4·26	4·26	3·82	3·74
Property .....	3·54	3·83	3·73	3·21	3·57	3·15	3·22
Public decorum .....	4·29	4·81	5·49	2·85	5·61	8·15	7·73
Local laws, &c., &c. ....	8·00	8·24	9·52	10·31	10·02	10·94	11·78
Others .....	0·02	0·02	0·02	0·02	0·02	0·02	—
	20·64	23·09	23·81	26·99	24·36	27·12	27·49
Public order, justice, reli- gion, morals, the person, and property .....	8·53	9·02	8·88	8·51	8·71	8·01	7·98
Public decorum and local laws	12·11	14·07	14·93	18·48	15·65	19·11	19·51

These facts are on the whole very favourable. Though the total number of persons brought before the courts of justice, or rather the number of cases tried before our criminal courts, has increased from an average of 24·36 per 1,000, in the twenty years from 1857 to 1876, to 27·12 per 1,000 in 1877, and 27·49 in 1878, the portion of such charged with offences of a moral character has diminished from 8·71 to 8·01 per 1,000 in 1877, and 7·98 per 1,000 in 1878: the increase being entirely in offences against public decorum, or against local laws. Among indictable offences, crimes against property are the most numerous, or in the proportion of 80 per cent. of the whole. But amongst summary jurisdiction offences, the greatest number consists of cases of drunkenness and transgression of local laws. Crimes against property usually diminish as trade is good and the rates of wages are high; but in proportion as these increase, so the offence of drunkenness usually increases.



VIII.—*Causes of Crime.*

If we could fathom the causes of crime, what a guide would be afforded for moral reforms. Groping in the dark as we do, criminal jurisprudence tries, we fear in vain, to cure what it has not the means to prevent. Medicine draws immense light and guidance from the analysis of the causes of death, so fully and ably hitherto exposed by our distinguished member, Dr. Farr. For the prevention of crime we may well wish that a similar analysis would accompany our judicial statistics. The causes of crime are now given in the case of those upon whom the highest penalty is awarded. The French judicial statistics give the causes of crime in all cases of murder, arson, and poisoning; and it would be a great advantage if an attempt was made, in as many cases as possible, to arrive at the relative influence on crime of violence, vindictiveness, want, greed, intemperance, and insubordination. From 1874 to 1876 there were tried in France 1,557 crimes, viz., 54 poisoning, 552 arson, 383 murders, and 568 assassinations, and their causes were found to be as follows:—

Causes.	Number.	Per Cent.
Cupidity .....	278	18
Adultery .....	35	2
Domestic dissensions .....	294	19
Opposed love .....	36	2
Debauchery .....	97	6
Hatred, vindictiveness .....	431	28
Publichouse quarrels .....	50	3
Fortuitous „ .....	72	5
Different motives .....	264	17
	1,557	100

The tendency to crime, if not inherited, is certainly acquired by contact with criminals: children learn it from their parents; associates one from the other. Crime lives and propagates among numbers; love of display, gambling, dissolute habits, the frequenting of low publichouses, or of worse orgies, all contaminate the character and lead to crime. Many have expressed an opinion that drunkenness is the most preponderating cause of crime. It is, however, in moral diseases, what fever is in physical diseases: it aggravates the causes which exist; it stimulates the imagination of evil and prompts revenge; but it is seldom the primary operating cause of crime, and where that exists, even though that element of aggravation were to disappear, it would, I fear, manifest itself in the same or other manner. It cannot be said that in countries where drunkenness does not exist, crime is less numerous. The criminal statistics of many European States might be easily adduced in opposition to such a theory. The large increase in the number committed for disobedience to local acts, way acts, police laws,

education acts, poor laws, cattle plague orders, mercantile marine acts, factory acts, health acts, and the like, only shows that it takes time for the nation to accustom itself to restrictions, often dictated by reasons the value of which the people themselves are incapable of appreciating.

### IX.—*Locality of Crime.*

The locality of crimes and offences is another important element in criminal statistics, for the economic condition of the different counties in England and Wales differs considerably from the peculiarity of race of their inhabitants, and from the special character of their principal industries, viz., agriculture, mineral, industrial, and manufacturing. Classified geographically, the number of persons committed for trial and proceeded against summarily in proportion to population was as follows:—

Counties.	Crimes.			Offences.		
	1857-76.	1877.	1878.	1857-76.	1877.	1878.
Metropolis .....	—	—	—	31'36	45'45	45'38
South-Eastern .....	0'90	0'57	0'54	19'34	9'87	11'27
„ Midland .....	0'77	0'56	0'54	14'37	16'69	17'97
Eastern Counties ...	0'64	0'45	0'51	9'03	10'14	10'55
South-Western .....	0'60	0'34	0'39	13'89	12'93	13'93
West Midland .....	0'92	0'69	0'75	22'36	31'11	31'77
North Midland .....	0'64	0'51	0'61	16'87	24'60	24'80
„ Western .....	1'22	0'93	0'90	34'59	37'55	38'39
York .....	0'79	0'57	0'73	22'40	22'98	22'88
Northern .....	0'47	0'42	0'38	39'24	32'95	30'89

### X.—*Crime and Density of Population.*

The relation of crime and offences to density of population is very intimate, closer probably than to any other cause whatever, as the following will show:—

	Persons to a Square Mile. Census, 1871.	Crimes. 1857-76.	Offences. 1857-76.
Wilts, Dorset, Devon, Cornwall, } Somerset .....	238	0'59	12'24
Essex, Suffolk, Norfolk .....	239	0'64	9'03
Herts, Bucks, Oxon, Northampton, } Huntingdon, Oxford, Cambridge }	253	0'70	12'55
Durham, Northumberland, Cum- } berland, Westmoreland .....	255	0'47	29'37
Leicester, Rutland, Lincoln, Not- } tingham .....	257	0'64	16'87
Kent, Sussex, Hants, Berks .....	375	0'88	12'37
Yorkshire .....	402	0'79	22'40
Gloucester, Hereford, Salop, Hert- } ford .....	444	0'92	23'95
Cheshire, Lancaster .....	1,131	1'22	34'59
Middlesex, Surrey .....	3,490	1'15	37'00

# SKELETON MAP, NAMES OF COUNTIES.

— ENGLAND & WALES. —















## INDICTABLE OFFENCES.

1857-1876.

ENGLAND & WALES.

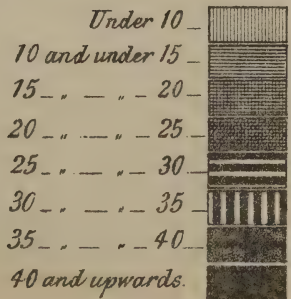
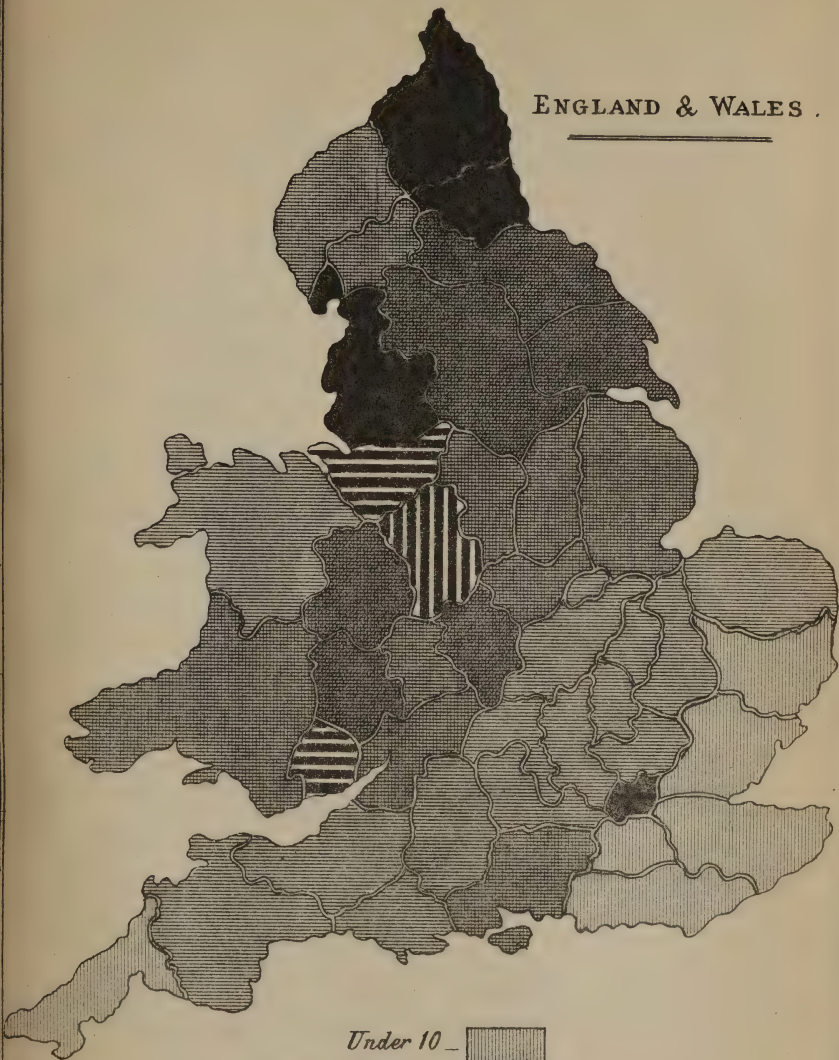
NUMBER COMMITTED FOR TRIAL PER 1000.

<i>Under 0.50</i>	
<i>0.50 and under 0.60</i>	
<i>0.60 — " — 0.70</i>	
<i>0.70 — " — 0.80</i>	
<i>0.80 — " — 0.90</i>	
<i>0.90 — " — 1.00</i>	
<i>1.00 — " — 1.20</i>	
<i>1.20 and upwards.</i>	



OFFENCES SUBJECT TO SUMMARY JURISDICTION.  
1857-1876.

ENGLAND & WALES.







A distinction between the amount of crime in country districts and in boroughs and large towns, would still more exhibit the close relation between crime and density of population. Crimes and offences do not exhibit a corresponding frequency in all the counties. In the northern counties crimes are low, whilst offences are high. In the north midland counties crimes were high and offences low.

### XI.—*Crime and Occupation.*

Classified according to occupation, the results are as follows:—

	Agricultural.			Mineral.			Industrial Manufacturing.	
	Crimes.	Offences.		Crimes.	Offences.		Crimes.	Offences.
Bedford ....	0·67	11·19	Cornwall ....	0·43	9·80	Chester ....	1·20	25·79
Berkshire ....	0·83	14·53				Derby .....	0·66	19·66
Bucks .....	0·77	13·47	Durham ....	0·59	44·15	Lancaster....	1·24	43·40
Cambridge ..	0·68	12·55				Nottingham	0·66	19·34
Dorset .....	0·64	13·22	Monmouth .	1·10	27·98	Stafford ....	0·80	31·92
Hereford ....	0·90	21·10				Gloucester..	0·90	19·39
Hertford ....	0·73	13·47	Northum-berland. }	0·48	40·28	Leicester ....	0·68	16·16
Huntingdon.	0·54	11·08				Warwick ....	1·08	22·03
Lincoln .....	0·73	17·63				Worcester ..	1·03	18·05
Norfolk .....	0·69	10·18				York .....	0·79	22·40
	0·71	13·84		0·65	30·55		0·90	23·81

Crime is least frequent in the mineral districts, and most frequent in the industrial and manufacturing. Offences, on the other hand, are least frequent in the agricultural, and most frequent in the mineral districts. In crime, Cornwall, a mineral county, stands in a remarkable contrast with Monmouth, the former for lightness, and the latter for heaviness. Chester and Leicester stand in equal contrast, and so do Hereford and Huntingdon. In offences Durham and Lancaster carry the palm. If race be considered as an element in the frequency of crime, it may be noticed that the Irish element is most prominent in the north-western and northern counties.

### XII.—*Crime in relation to Ignorance, Savings, and Pauperism.*

Of still greater value is the element of education. Taking the mean average number of persons unable to sign their names on the marriage register in 1861, 1871, and 1877, and comparing the results in each group of counties with the amount of crimes and offences, it will be seen that ignorance goes hand-in-hand with crimes and offences in certain cases, but by no means uniformly:—

	Crimes.	Offences.	Ignorance. Percentage of Signatures by Marks.	Shillings; Number per Head in Savings Banks.	Pauperism per 1,000.
South-Eastern .....	0·90	19·34	15·4	44	47
„ Midland .....	0·91	14·37	24·8	40	53
Eastern Counties ....	0·64	9·03	25·2	38	59
South-Western .....	0·60	13·89	22·0	53	52
West Midland .....	0·92	22·36	26·4	48	38
North Midland .....	0·64	16·87	21·8	39	39
„ Western .....	1·22	34·59	28·4	41	26
York .....	0·79	22·40	22·0	36	27
Northern .....	0·47	39·24	20·1	32	33

The north-western counties, the least educated, have the largest proportion of crimes and offences, but the south-eastern counties, the best educated, are by no means least in rank as regards either crimes or offences. The relation between crimes and offences with the amount of savings and pauperism is not so clear. In the northern counties the amount at the savings banks is very low, and the number of offences high. In the south-eastern counties where the amount at the savings banks is high, crimes and offences are comparatively low. But pauperism is high where crimes and offences are low, as in the eastern counties and in the south midland.

### XIII.—*Crime in Relation to Sex.*

The sex of the persons committed for trial, and of persons subjected to summary jurisdiction, was as follows:—

	Number Committed for Trial.			Number under Summary Jurisdiction.		
	Males.	Females.	Per Cent. of Women.	Males.	Females.	Per Cent. of Women.
1857-61 ....	13,826	3,997	22·42	320,463	80,679	20·70
'62-66 ....	15,609	4,128	20·91	355,800	86,600	19·57
'67-71 ....	14,755	3,690	20·00	412,100	98,000	18·28
'72-76 ....	11,848	3,287	21·05	496,100	120,600	19·55
1857-76 ....	14,009	3,775	21·22	396,115	96,469	19·60
1877 .....	12,586	3,354	21·04	528,015	125,038	19·14
'78 .....	13,104	3,268	19·95	548,418	128,355	18·96

The proportion of males to females does not show much change during the entire period. They are in the proportion of four-fifths to one-fifth. Larceny is the chief crime for which women are

# IGNORANCE.

1857 - 1876.

ENGLAND & WALES.



SIGNATURES BY MARKS PER 1000.

<i>Under 15</i>	
<i>15 and under 20</i>	
<i>20 - " - " - 25</i>	
<i>25 - " - " - 30</i>	
<i>30 - " - " - 35</i>	
<i>35 and upwards</i>	



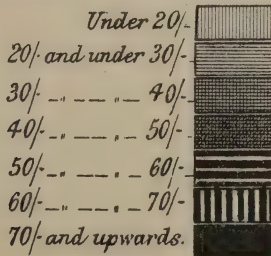


# SAVINGS BANKS. 1857 1876.

ENGLAND & WALES.



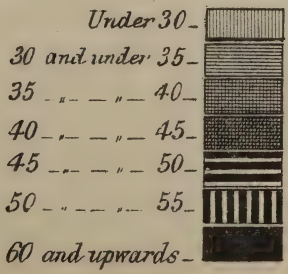
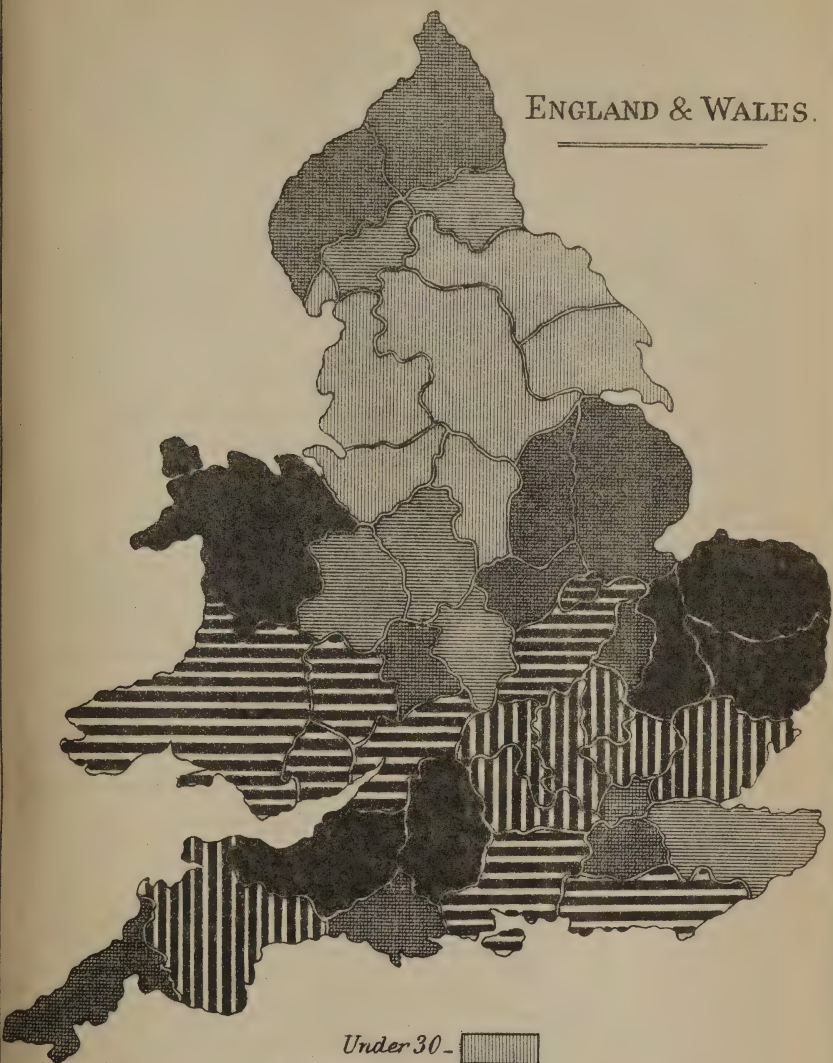
SHILLINGS PER HEAD AT THE SAVINGS BANKS.





PAUPERISM.  
1857-1876.

ENGLAND & WALES.







committed. But a large proportion of women are committed for assaults, drunkenness, offences against local acts, larceny, prostitution, and begging. In Scotland the proportion was 72·55 per cent. males and 27·45 per cent. females. In Ireland 83·55 per cent. males and 16·45 per cent. females. Scotch women appear thus more lawless than English and Irish women.

XIV.—*Character of Criminals.*

A large proportion of the persons committed for both crimes and offences is found to belong to the criminal classes, such as thieves, prostitutes, vagrants, and suspicious persons. An increasing number are habitual drunkards, but many had a previously good character, or were otherwise unknown. The proportions per 1,000,000 were as follows :—

	Known Thieves.		Prostitutes.		Vagrants.		Suspicious Persons.		Habitual Drunkards.	
	Crimes.	Offences.	Crimes.	Offences	Crimes.	Offences	Crimes.	Offences.	Crimes.	Offences.
1857-61	293	822	94	1,020	37	938	335	2,128	20	1,136
'62-66	274	704	70	860	41	941	316	1,894	26	1,394
'67-71	251	642	57	877	30	1,128	276	1,577	23	1,602
'72-76	187	533	34	881	14	821	176	1,589	20	1,803
1857-76	251	675	63	909	30	957	275	1,797	22	1,483
1877 ....	186	519	32	879	14	882	189	1,624	23	1,795
'78 ....	203	536	40	866	15	937	203	1,602	24	1,760

	Previously Good Character.		Unknown.		Proportion per Cent. of Previously Good Character, and Unknown, to Total Number.
	Crimes.	Offences.	Crimes.	Offences.	
1857-61 ....	256	6,975	297	7,074	32
'62-66 ....	300	7,962	365	7,341	30
'67-71 ....	279	9,398	322	7,822	27
'72-76 ....	253	11,739	261	8,665	23
1857-76 ....	272	9,018	311	7,950	22
1877 .....	271	12,175	280	8,728	28
'78 .....	270	12,363	285	9,167	23

An increasing proportion of persons seems thus annually drawn to a criminal life. The criminal classes are probably in many cases the instigators of crime, but a large proportion of the offenders, notably for offences subject to summary jurisdiction, are year by year drawn from the mass of the population.

XV.—*Proportions of Acquittals to Committed for Crime.*

Hitherto I have dealt with the number of persons committed before the magistrates or committed for trial. We must now direct our attention to the results of the proceedings. Of the number committed before the magistrates, the proportion convicted and discharged was as follows:—

	Number.		Proportion per Cent.	
	Committed.	Convicted.	Convicted.	Discharged.
1857-61 ....	389,142	254,434	65	35
'62-66 ....	442,493	301,862	68	32
'67-71 ....	510,175	370,619	72	28
'72-76 ....	616,751	481,282	78	22
1857-76 ....	494,640	352,049	71	29
1877 .....	653,053	519,838	79	21
'78 .....	676,773	538,232	79	21

Of the number apprehended for indictable offences, the proportion committed for trial and discharged was as follows:—

	Number.		Proportion per Cent.	
	Apprehended.	Committed for Trial.	Committed for Trial.	Discharged.
1857-61 ....	28,428	16,085	56	44
'62-66 ....	28,920	18,395	63	37
'67-71 ....	27,494	17,245	62	38
'72-76 ....	22,452	13,996	62	38
1857-76 ....	26,823	16,430	60	40
1877 .....	23,545	14,609	62	38
'78 .....	24,062	15,039	62	38

The proportion discharged is considerably larger in the case of indictable offences than in the case of offences subject to summary jurisdiction, yet it is smaller now than in the previous twenty years.

XVI.—*Punishment of Crime.*

In both cases of crimes and offences, there are evidences of greater rigour in the distribution of justice. In minor offences, especially drunkenness and the like, the state of public opinion considerably influences both the police and the magistrates, and the larger proportion submitted to the correction of the courts, is only a proof of a higher sense of morals and public order prevalent in

the entire community. In the case of persons subject to summary jurisdiction, the judgment of the magistrates being final, conviction and punishment go hand-in-hand, and the mode in which they were disposed was as follows :—

	Number Convicted.	Number Fined.	Number Committed to Prison.	To Find Sureties, and to Reformatory Schools.	Proportion per Cent.		
					Fined.	Committed to Prison.	Others.
1857-61 ....	254,434	159,568	59,218	35,648	62	23	15
'62-66 ....	301,862	188,273	71,965	41,624	62	23	15
'67-71 ....	370,619	235,546	86,433	48,640	63	23	14
'72-76 ....	481,282	332,955	89,529	58,798	69	18	13
1857-76 ....	352,049	229,085	76,786	46,178	65	21	14
1877 .....	519,839	358,053	100,525	61,261	69	19	12
'78 .....	538,232	369,586	103,169	65,477	68	19	13

The term of imprisonment awarded by magistrates is but small, and there is a slight increase in the proportion of short imprisonments, but this arises from the increasing number of light offences recently added to the statute book. The proportion is as follows :—

	Per Cent. of Committals to Prisons.					
	Fourteen Days and Under.	One Month and over 14 Days.	Two Months and over 1 Month.	Three Months and over 2 Months.	Six Months and over 3 Months.	Above 6 Months.
1857-61....	33	33	16	13	4	1
'62-66. . .	38	32	15	11	3	1
'67-71....	44	30	13	9	3	1
'72-76....	43	30	14	8	4	1
1857-76....	39	31	14	10	4	1
1877 .....	43	28	12	8	3	1
'78 .....	44	29	12	8	3	1

The proportion of the persons committed for criminal offences, eventually acquitted, is as follows :—

	Number Committed.	Number Acquitted.	Per Cent.
1857-61 .....	17,824	4,361	24'0
'62-66 .....	19,756	4,760	24'0
'67-71 .....	18,445	4,712	25'0
'72-76 .....	15,136	3,772	25'0
1857-76 .....	17,790	4,401	24'7
1877 .....	15,890	3,903	24'6
'78 .....	16,372	3,864	23'6

The proportion of acquittals differs, however, considerably, according to the class of crimes, in the following order :—

Class.		1857-61.	1862-66.	1867-71.	1872-76.	1857-76.	1877.	1878.
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
1	Offences against the person .....	32	29	33	29	30	30	28
2	Offences against property, with violence	22	20	21	19	20	19	19
3	Offences against property, without violence .....	23	20	25	24	23	24	22
4	Malicious offences against property....	45	38	43	42	42	43	41
5	Forgery and offences against the currency .....	12	14	15	14	13	13	15
6	Riots, &c. ....	32	28	34	30	30	25	25

### XVII.—*The Punishment of Death.*

The proportion of acquittals is large in the case of murder, the only offence for which the punishment of death is still awarded. The proportion was as follows :—

	Committed for Trial.	Acquitted.	Detained as Insane.	Convicted.	Per Cent. Acquitted.	Per Cent. Insane.	Per Cent. Convicted.
1857-61	319	173	50	96	54	16	30
'62-66	345	152	58	135	44	17	39
'67-71	323	181	48	94	56	14	36
'72-76	342	144	60	138	42	18	40
1857-76	332	162	54	116	49	16	35
1877 ....	70	25	11	34	36	16	48
'78 ....	59	27	12	20	46	20	34

The result of criminal proceedings in respect to murder is that of 100 persons committed for trial, 48 are acquitted and discharged; 16 are detained as insane, and 36 per cent. only are convicted. In Scotland, of 12 cases disposed of in 1878, 9 were convicted, or 75 per cent. In Ireland, of 26 cases of murder, only 5 were convicted, or 25 per cent. of the whole. In France, of 270 cases of *meurtre* and *assassinat*, 55 were acquitted, and 215 convicted, but of these only 2 were condemned to death, and the remainder to imprisonment for different terms.

Those guilty of the crime of murder have, moreover, a great chance of escaping the penalty of death after conviction, the proportion of executions to the number of convictions in the last forty-five years having been as follows :—



	Sentenced to Death. Decennial Average.	Executed. Decennial Average.	Percentage Executed.
1822-31 .....	15'3	13'2	86
'32-41 .....	17'2	10'3	59
'42-51 .....	17'9	10'6	59
'52-61 .....	18'2	10'4	57
'62-71 .....	22'9	11'7	57
1872-77 .....	27'4	17'0	51
1877 .....	34'0	22'0	64
'78 .....	20'0	14'0	70

The large proportion of acquittals in cases of murder doubtless arises from an unwillingness to convict, owing to the severity and irreparable character of the punishment of death. That this element enters largely in the result of the trial, is confirmed from the apparent ease with which the plea of insanity is admitted. Dr. Guy's admirable paper on "Insanity and Crime, and on the "Plea of Insanity in Criminal Cases," read before the Society in 1869, showed that the acquittals on the ground of insanity are, as a rule proportionally more numerous as the crimes are more serious. And he added, that pleas are admitted or allowed in cases where the punishment of death follows conviction, which would not be received where any other punishment could be awarded; and that the great chance of escaping the dire punishment of death is likely to have the effect of rendering the criminal more careless and daring. The evidence of judges on the difficulty of obtaining a conviction in consequence of such punishment is very pointed. Lord Cranworth, Baron Bramwell, Mr. Justice Denman, all said substantially that capital punishment leads to the acquittal of many men who would otherwise most certainly be convicted.

The penalty of death is, I fear, of little use as inspiring a dread of death, for how many are there who are careless of life, nay, too anxious to put an end to a life of misery and wretchedness? What does the large number of suicides\* testify but

\* The number of suicides averaged as follows:—

		Per 1,000,000.
1857-61 .....	1,309	66
'62-66 .....	1,352	64
'67-71 .....	1,489	67
'72-76 .....	1,555	65
1857-76 .....	1,426	65
1877 .....	1,636	66
'78 .....	1,709	67

a greater dread of life than of death? The punishment of death has no longer the glare and the spectacle of the public gallows, since executions are carried out within the precincts of a jail.\* Nevertheless, so long as the punishment exists, so long does it tend to diminish the sacredness of human life, which it is the duty of the legislature to inspire. The punishment of death, said Beccaria, is a war waged by the nation against the citizen, on the plea that the death of the criminal is necessary and useful to society. But, he adds, it is not necessary when society can easily deprive him of his freedom, and it is not useful, since it does not, as a fact, serve as a deterrent of crime.

The progress of public opinion on the question of capital punishment is remarkable. In 1823 capital punishment was repealed for cattle, horse, and sheep stealing, and larceny to the value of 5*l.* in dwelling houses, and for forgery, except of wills and powers of attorney to transfer government stock; in 1833, for housebreaking; in 1834, for returning from transportation; in 1835, for sacrilege and letter stealing; in 1837, for forgery in all cases, attempts to murder, sacrilege, burglary, stealing in dwelling-houses, robbery, piracy, and arson; in 1841, for rape, riot, and embezzlement; and now capital punishment is inflicted only in case of murder.

Not only capital punishment is but seldom awarded, and still less often put in execution, but transportation is a thing of the past, and even penal servitude and imprisonment are awarded for shorter periods. Of the total number convicted, 14 per cent. were committed to penal servitude, and 86 per cent. to imprisonment. Of those committed to penal servitude, the majority were for six to fifteen years, penal servitude for life being awarded in only 0·60 per cent.; whilst of those committed to imprisonment, only 10 per cent. were for above one to three years, and the remainder for one year to one month and under, to the reformatory school, or for whipping.

The statistics of punishments in relation to the different crimes and offences committed, would, I fear, exhibit not a few strange anomalies. Daily do we observe striking illustrations of the inequality of punishments; trifling offences, often by women or children, being punished with great severity, and again, the lightest punishment being often awarded for offences of the gravest character. Doubtless the circumstances relating to the antecedents of the offenders must be taken into consideration, but too great a latitude is evidently left with the judges. Again, I say, the scale of punishment should be such as will commend itself

\* The Capital Punishment Amendment Act, 1868, provided for the carrying out of capital punishment within the walls of the prison in which the offender is confined at the time of execution.

to the moral sense of the nation, if we wish it to exercise a wholesome influence on the community.

XVIII.—*Commitment to Prisons.*

The total number of commitments to prisons in England and Wales during the period in question was as follows:—

Years.	Population.	Average Number of Commitments.	Proportion per 1,000 of Population.
1857-61 .....	19,687,000	128,767	6·54
'62-66 .....	20,830,000	139,941	6·72
'67-71 .....	22,174,000	161,369	7·27
'72-76 .....	23,652,000	167,354	7·07
	21,586,000	149,365	6·90
1877 .....	24,547,000	187,412	7·59
'78 .....	24,854,000	186,060	7·48

Who are these? How many of these were committed before? What were their ages, and sex, birthplace, degree of instruction, and previous occupation? Correct information on the antecedents and the particulars of the criminal population cannot be got before conviction and imprisonment. It is only when all inducement to secrecy ceases to exist, that the truth can be fathomed. Would, indeed, that the whole truth could even then be ascertained!

XIX.—*Recommittals.*

If it be a sad experience that a large proportion of our committals are new men first brought under the power of justice, it is still more equally grieving and disappointing that an increasing proportion consists of recommittals. The proportion of first committals was as follows:—

	First Commitment.	Recommittals.
	Per cent.	Per cent.
1857-61 .....	69·51	30·49
'62-66 .....	68·46	31·54
'67-71 .....	65·46	34·54
'72-76 .....	61·96	38·04
1857-76 .....	66·34	33·65
1877 .....	60·84	39·16
'78 .....	60·00	40·00

Of the recommittals, during the twenty years 1857-76, the proportions were as follows:—

	1857-66.	1877.	1878.
	Per cent.	Per cent.	Per cent.
Once .....	40	34'8	35'5
Twice .....	18	16'2	16'1
Thrice .....	18	9'9	9'8
Four times .....	7	7'4	7'0
Five times .....	5	5'1	5'0
Seven times, and above 5 .....	6	7'2	6'8
Ten times and above 7	5	6'0	6'3
Above 10 times .....	9	13'4	13'5
	100	100'0	100'0

The increase in the number of recommitments manifestly shows how difficult it is to eradicate crime when the fatal root has once been planted. The recommendations of the royal commissioners on the working of the penal servitude acts, regarding an improved system of classification of convicts and other subjects, are worthy of the most earnest attention. It is indeed much to be feared that as it is the prison is less a place for the reformation, than for the contamination of character. The increase of recommitments from seven times and upwards, especially of women, is very disappointing.

In 1869, somewhat on the example of continental countries, a system of police inspection was established upon habitual criminals. The Habitual Criminals Act gave power to the police to apprehend holders of licences on suspicion, provided for the registration of criminals, and rendered any person twice guilty of felony, and not punished with penal servitude, subject to the supervision of the police, it may be for seven years. Have the results fulfilled the expectations entertained of the Act? The proportion of recommitments has increased, not decreased, since the passing of the Act (32 and 33 Vict., cap. 99).

#### XX.—Age of Prisoners.

The ages of those committed exhibited the following proportions:—

	1857-66.	1877.	1878.
Under 12 years .....	1'12	0'6	0'4
12 and under 16.....	5'65	3'7	3'5
16     "     21.....	19'60	16'0	15'8
21     "     30.....	32'15	32'4	32'9
30     "     40.....	20'40	22'8	22'5
40     "     50.....	12'15	13'3	13'9
50     "     60.....	5'63	7'4	7'3
Above 60.....	3'00	3'6	3'6
Not ascertained .....	0'30	0'2	0'2
	100'00	100'0	100'0



There is happily a considerable diminution in the number of prisoners under 12 years of age, and also from 12 to 16 : but this is greatly owing to the number detained in reformatory and industrial schools.\*

The criminal age is thus pre-eminently 16 to 50, or still more, 21 to 40. Comparing the proportional ages of the population with the proportional ages of criminals, the relative liability to crime is apparent.

		Population in 1871.			Criminals, 1878.
Under 15 .....		13'52	Under 12 .....		0'4
5 and under 15.....		22'58	12 and under 16 ....		3'5
15     "     20.....		9'59	16     "     21 ....		15'8
20     "     30.....		16'66	21     "     30 ....		32'9
30     "     40.....		12'80	30     "     40 ....		22'5
40     "     50.....		10'05	40     "     50 ....		13'8
50     "     60.....		7'32	50     "     60 ....		7'3
60 and upwards .....		7'48	60 and upwards ....		3'6

### XXI.—*Education of Prisoners.*

It is interesting to find the remarkable diminution of children in our prisons, the fruit, to a large extent, of the educational measures of recent years.

The state of education among prisoners was as follows :—

	Neither Read or Write.	Read or Write Imperfectly.	Read and Write Well.	Superior Instruction.
1857-61 ....	35'0	59'1	4'6	0'30
'62-66 ....	35'0	60'0	3'7	0'20
'67-71 ....	34'6	61'4	3'0	0'16
'72-76 ....	33'2	62'4	3'8	0'15
1857-76 ....	34'0	60'0	3'7	0'02
'77 .....	33'2	62'9	3'7	0'01
'78 .....	33'0	63'4	3'2	0'01

The proportion who could neither read nor write has decreased, and the proportion who could do so only imperfectly has almost proportionately increased. The bulk of crime is committed by the uneducated.

\* By the 17 and 18 Vict., cap. 86, and subsequent Acts, it became lawful for any court before whom any person under the age of 16 shall be convicted and sentenced to receive any punishment to the extent of fourteen days' imprisonment at the least, to direct that in addition to such imprisonment, such person may be sent to a reformatory school. But if the reformatory school is intended to save the child from the contamination of the prison, why send him there in the first instance? Nothing but the most pernicious consequences on the character of the child can arise from an early contact with prisons and prisoners.

XXII.—*Nationality of Prisoners.*

The nationality of prisoners may be deduced from the following proportions of their birthplace :—

	English.	Welsh.	Scotch.	Irish.	Colonies.	Foreign.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
1857-61 ....	78·2	2·5	1·9	14·2	0·4	1·5
'62-66 ....	78·0	2·7	1·9	14·8	0·4	1·3
'67-71 ....	78·5	2·7	2·6	14·1	0·4	1·3
'72-76 ....	77·8	2·7	2·3	14·5	0·4	1·4
'57-76 ....	78·1	2·6	2·0	14·4	0·4	1·3
'77 .....	79·0	3·1	2·4	13·5	0·4	1·3
'78 .....	79·3	3·1	2·3	13·1	0·4	1·3

Compare the number of prisoners of different nationalities with the total number born in other countries and residing in England and Wales, and we have the relative proportion of contributors to the criminal classes as follows :—

	Population, 1871.	Criminals, 1878.
England and Wales ....	82·4	79·3
Scotland .....	0·9	2·3
Ireland .....	2·5	13·1
Colonies .....	0·3	0·4
Foreign countries .....	0·6	1·3

It will be seen that a much greater preponderance of offenders is to be found among those born out of England and Wales than among those born in England and Wales, but the proportion of adults among the former is greater than among the latter.

XXIII.—*Conclusions.*

The progress of crime in England and Wales, both absolutely and in relation to population, during the twenty years from 1857 to 1876, and for the last two years 1877 and 1878, exhibits many evidences of improvement.

It is gratifying to note that treason does not exist in England, that the blackest crimes are diminishing, and that the aspect of society is, on the whole, brighter now than it was a quarter of a century ago. Disobedience to law, regardlessness of public order and decorum, immoderate desires of property, exist indeed largely, but there is more respect for the person and for the administration of justice. The desiderata in the English character are more sobriety of deportment, more seriousness of conduct, more thrift of resources, and above all, a greater sense of personal responsibility.

TABLE A.—*Quinquennial Average Number of Persons Committed for Trial.*

Counties.	1857-61.	1862-66.	1867-71.	1872-76.	1857-76.	1877.	1878.
Bedford .....	89	104	165	54	90	64	63
Berks .....	160	170	155	116	149	129	113
Bucks .....	128	110	142	111	129	101	87
Cambridge .....	126	131	136	100	122	96	69
Chester .....	658	650	597	504	602	489	482
Cornwall .....	182	192	157	103	158	96	92
Cumberland .....	83	96	98	90	91	99	114
Derby .....	218	234	251	190	223	178	189
Devon .....	468	396	363	240	366	176	170
Dorset .....	138	122	127	99	125	87	76
Durham .....	261	298	317	357	308	423	343
Essex .....	301	293	296	222	277	210	254
Gloucester.....	503	461	424	373	439	423	432
Hereford .....	101	130	118	95	110	112	127
Hertford .....	138	142	135	96	127	86	96
Huntingdon .....	36	35	43	24	34	27	20
Kent .....	750	733	612	450	635	517	440
Lancaster .....	3,119	3,265	2,769	2,688	2,960	3,228	3,147
Leicester .....	182	163	171	147	165	169	196
Lincoln .....	329	352	320	228	307	239	279
Middlesex .....	2,446	3,288	3,240	2,525	2,874	2,683	2,917
Monmouth .....	195	195	216	161	191	137	123
Norfolk .....	341	361	298	216	303	219	226
Northampton ....	156	206	189	158	176	194	215
Northumberland ..	151	150	175	183	164	106	157
Nottingham .....	220	238	154	159	192	176	211
Oxford .....	118	167	139	81	126	78	82
Rutland.....	12	10	11	9	10	11	17
Salop .....	192	232	204	146	192	145	192
Somerset .....	352	391	331	248	330	242	264
Southampton ....	502	522	456	385	465	352	371
Stafford .....	605	665	622	437	582	402	529
Suffolk .....	223	215	219	127	194	149	171
Surrey .....	722	812	922	818	817	847	916
Sussex .....	307	354	330	241	307	248	241
Warwick .....	619	673	584	510	595	506	524
Westmoreland ....	23	25	23	22	22	25	18
Wilts .....	148	167	139	113	141	64	129
Worcester.....	366	353	298	237	312	270	273
York .....	1,432	1,831	1,768	1,449	1,620	1,406	1,496
Anglesey .....	19	27	18	14	19	16	11
Brecon .....	34	47	37	38	38	45	34
Cardigan .....	14	26	29	16	21	15	9
Carmarthen .....	29	33	28	28	28	31	23
Carnarvon .....	39	27	32	25	30	18	23
Denbigh .....	49	62	39	29	44	25	38
Flint .....	31	39	49	28	36	41	30
Glamorgan .....	374	345	392	362	367	338	263
Merioneth.....	11	32	27	13	20	16	11
Montgomery ....	58	91	75	36	64	34	37
Pembroke .....	45	43	40	21	37	32	22
Radnor .....	18	24	18	8	16	10	10
England and Wales .....	17,825	19,758	18,445	15,136	17,790	15,890	16,372

TABLE B.—*Quinquennial Average Number of Persons Committed for Trial per 1,000 of the Population in 1851, 1861, 1871, 1877, and 1878.*

Counties.	1857-61.	1862-66.	1867-71.	1872-76.	1857-76.	1877.	1878.
Bedford.....	0·72	0·76	0·84	0·37	0·67	0·40	0·39
Berks.....	9·94	0·96	0·86	0·59	0·83	0·53	0·45
Bucks.....	0·78	0·83	0·84	0·63	0·77	0·63	0·54
Cambridge.....	0·68	0·74	0·77	0·53	0·68	0·48	0·34
Chester.....	1·44	1·28	1·18	0·89	1·20	0·83	0·81
Cornwall.....	0·51	0·52	0·42	0·27	0·43	0·27	0·26
Cumberland.....	0·42	0·46	0·48	0·41	0·45	0·43	0·49
Derby.....	0·73	0·69	0·74	0·49	0·66	0·51	0·54
Devon.....	0·83	0·67	0·62	0·40	0·63	0·28	0·27
Dorset.....	0·75	0·64	0·67	0·50	0·64	0·45	0·39
Durham.....	0·67	0·58	0·62	0·52	0·59	0·50	0·40
Essex.....	0·82	0·72	0·73	0·47	0·68	0·43	0·51
Gloucester.....	1·10	0·94	0·87	0·69	0·90	0·81	0·82
Hereford.....	0·88	1·04	0·95	0·76	0·90	0·91	1·04
Hertford.....	0·82	0·82	0·78	0·49	0·73	0·41	0·46
Huntingdon.....	0·56	0·55	0·67	0·37	0·54	0·47	0·35
Kent.....	1·22	0·99	0·83	0·53	0·89	0·54	0·45
Lancaster.....	1·54	1·34	1·14	0·95	1·24	1·03	0·99
Leicester.....	0·79	0·68	0·72	0·54	0·68	0·57	0·65
Lincoln.....	0·80	0·85	0·77	0·52	0·73	0·53	0·62
Middlesex.....	1·30	1·49	1·46	0·99	1·31	0·97	1·04
Monmouth.....	1·24	1·11	1·23	0·83	1·10	0·58	0·51
Norfolk.....	0·77	0·82	0·68	0·49	0·69	0·50	0·52
Northampton.....	0·73	0·90	0·82	0·64	0·77	0·75	0·82
Northumberland.....	0·50	0·43	0·51	0·47	0·48	0·39	0·37
Nottingham.....	0·81	0·81	0·52	0·49	0·66	0·46	0·55
Oxford.....	0·69	0·97	0·81	0·45	0·73	0·42	0·44
Rutland.....	0·53	0·46	0·49	0·42	0·47	0·47	0·73
Salop.....	0·83	0·96	0·84	0·59	0·81	0·53	0·70
Somerset.....	0·79	0·87	0·74	0·53	0·73	0·48	0·53
Southampton.....	1·25	1·08	0·94	0·70	0·99	0·62	0·64
Stafford.....	0·99	0·89	0·83	0·50	0·80	0·42	0·54
Suffolk.....	0·66	0·64	0·64	0·36	0·57	0·42	0·51
Surrey.....	1·06	0·97	1·11	0·84	0·99	0·65	0·69
Sussex.....	0·91	0·97	0·91	0·57	0·84	0·54	0·51
Warwick.....	1·30	1·19	1·04	0·80	1·08	0·74	0·76
Westmoreland.....	0·40	0·41	0·37	0·33	0·38	0·36	0·28
Wilts.....	0·58	0·67	0·55	0·43	0·56	0·25	0·51
Worcester.....	1·32	1·14	0·97	0·70	1·03	0·73	0·73
York.....	0·79	0·90	0·87	0·59	0·79	0·51	0·54
Anglesey.....	0·33	0·48	0·33	0·27	0·36	0·31	0·21
Brecon.....	0·56	0·76	0·59	0·63	0·64	0·75	0·56
Cardigan.....	0·09	0·36	0·41	0·21	0·29	0·20	0·12
Carmarthen.....	0·26	0·29	0·24	0·23	0·26	0·26	0·19
Carnarvon.....	0·44	0·28	0·32	0·23	0·32	0·17	0·21
Denbigh.....	0·52	0·62	0·39	0·27	0·45	0·24	0·36
Flint.....	0·45	0·55	0·69	0·37	0·52	0·53	0·39
Glamorgan.....	1·63	1·08	1·22	0·91	1·21	0·85	0·66
Merioneth.....	0·28	0·82	0·68	0·27	0·29	0·34	0·23
Montgomery.....	0·86	1·35	1·11	0·53	0·96	0·50	0·54
Pembroke.....	0·48	0·44	0·42	0·23	0·39	0·34	0·23
Radnor.....	0·70	0·95	0·72	0·33	0·63	0·44	0·44
England and Wales.....	0·99	0·98	0·91	0·66	0·87	0·64	0·65



TABLE C.—*Quinquennial Average Number of Persons Proceeded against Summarily before Justices.*

Counties.	1857-61.	1862-66.	1867-71.	1872-76.	1857-76.	1877.	1878.
Bedford.....	1,186	1,435	1,803	1,623	1,511	1,989	2,136
Berks .....	2,414	2,597	2,728	2,626	2,591	2,648	3,254
Bucks .....	1,990	2,108	2,761	2,251	2,284	2,109	2,224
Cambridge .....	2,049	2,200	2,603	2,290	2,285	2,130	2,131
Chester .....	10,071	12,546	13,488	16,215	13,080	17,170	18,387
Cornwall .....	3,199	4,228	3,819	3,076	3,580	3,110	2,898
Cumberland .....	2,917	3,218	3,680	5,229	3,760	6,078	6,491
Derby .....	4,420	5,577	6,805	9,909	6,676	11,911	11,544
Devon .....	5,710	7,121	7,779	7,499	7,027	8,261	8,889
Dorset .....	1,280	2,887	3,138	2,697	2,500	2,810	3,224
Durham .....	13,478	18,511	23,698	40,398	24,021	37,669	35,370
Essex .....	2,582	2,758	3,310	3,352	2,997	3,497	3,731
Gloucester.....	7,182	8,967	10,283	11,746	9,544	12,029	13,705
Hereford .....	2,341	2,445	2,829	2,604	2,554	2,828	2,824
Hertford .....	1,989	2,518	3,020	2,467	2,498	2,495	2,623
Huntingdon .....	690	726	849	572	709	529	849
Kent .....	5,049	6,742	7,327	7,456	6,642	8,500	9,789
Lancaster .....	81,366	86,647	114,343	138,830	105,296	142,472	144,604
Leicester .....	3,121	3,365	3,927	5,428	3,960	6,953	7,359
Lincoln .....	5,433	7,093	8,182	8,780	7,371	10,379	11,793
Metropolis .....	93,723	95,273	102,319	111,281	100,648	125,857	127,194
Monmouth .....	3,537	4,568	5,336	6,152	4,898	6,143	7,066
Norfolk .....	3,843	4,433	4,725	4,832	4,458	5,465	5,896
Northampton .....	2,642	2,862	3,195	3,503	3,050	4,231	4,579
Northumberland .....	7,730	8,916	10,350	17,155	8,830	17,616	16,634
Nottingham .....	4,485	4,844	5,202	8,255	5,696	8,683	9,712
Oxford .....	1,748	2,100	2,561	2,266	2,168	2,550	2,857
Rutland.....	194	206	219	401	255	422	443
Salop .....	5,077	5,853	5,903	5,550	5,595	6,221	5,967
Somerset .....	6,257	6,551	6,998	6,983	6,697	7,484	8,393
Southampton .....	5,971	7,816	8,171	8,282	7,560	9,129	10,434
Stafford.....	19,345	21,497	22,885	31,317	23,761	29,168	30,168
Suffolk .....	3,133	3,203	3,346	3,398	3,270	3,752	3,716
Surrey .....	1,612	1,695	2,507	2,217	2,007	2,598	2,897
Sussex .....	2,905	3,655	4,484	4,309	3,838	5,121	5,714
Warwick .....	8,064	12,463	15,290	19,732	13,887	22,163	22,705
Westmoreland .....	623	849	1,018	1,069	902	1,128	1,016
Wilts .....	2,345	2,452	2,458	2,895	2,544	3,201	3,451
Worcester .....	4,553	5,197	5,699	6,727	5,543	8,390	8,468
York .....	30,665	42,563	46,737	67,165	46,782	73,405	74,609
Anglesey .....	433	409	454	491	446	895	1,164
Brecon .....	1,218	1,479	1,548	1,601	1,461	1,794	1,568
Cardigan .....	396	565	752	963	669	1,329	1,307
Carmarthen .....	1,566	1,575	1,846	1,807	1,698	2,480	2,896
Carnarvon .....	870	1,410	1,572	1,710	1,390	2,435	2,563
Denbigh .....	1,345	1,312	1,246	1,450	1,050	1,642	2,010
Flint .....	1,003	1,328	1,423	1,830	1,395	1,801	1,729
Glamorgan .....	7,497	7,999	10,023	14,261	9,944	14,872	13,923
Merioneth .....	277	488	535	461	440	564	606
Montgomery.....	1,123	1,147	1,188	1,281	1,184	1,387	1,300
Pembroke .....	935	1,229	1,235	1,066	1,108	1,096	1,677
Radnor .....	309	434	485	419	411	537	506
England and Wales .....	389,142	452,493	510,175	616,731	496,136	653,053	676,773

TABLE D.—*Quinquennial Average Number of Persons Proceeded against Summarily before Justices, per 1,000 of the Population, 1851, 1861, 1871, 1877, and 1878.*

Counties.	1857-61.	1862-66.	1867-71.	1872-76.	1857-76.	1877.	1878.
Bedford.....	9'55	10'62	13'35	11'12	11'19	12'50	13'35
Berks.....	14'61	14'75	15'50	13'39	14'53	11'03	13'44
Bucks.....	12'13	12'54	16'48	12'78	13'47	13'18	13'81
Cambridge .....	11'07	12'50	14'78	12'31	12'55	10'73	10'65
Chester .....	22'08	24'84	26'69	28'99	25'79	29'40	31'05
Cornwall .....	9'03	11'45	10'34	8'49	9'80	8'78	8'20
Cumberland .....	14'95	15'74	17'94	23'76	18'07	26'42	27'97
Derby .....	14'93	16'44	20'36	26'00	19'66	34'52	33'07
Devon .....	10'81	12'19	13'32	7'48	13'28	13'41	14'38
Dorset .....	6'95	15'42	16'60	13'76	13'22	14'55	16'56
Durham.....	34'33	36'37	46'55	58'96	44'15	46'47	41'27
Essex.....	7'01	6'80	8'16	7'19	7'33	7'22	7'59
Gloucester .....	15'71	18'45	21'15	21'99	19'39	23'15	26'15
Hereford .....	20'35	19'71	22'81	20'83	21'10	23'18	23'14
Hertford .....	11'91	14'55	17'45	12'77	13'77	12'11	12'61
Huntingdon .....	10'78	11'34	13'26	9'00	11'08	9'28	14'91
Kent .....	8'26	9'18	9'98	8'79	9'08	9'01	10'22
Lancaster .....	40'16	35'66	47'67	49'24	43'40	45'70	45'73
Leicester .....	13'56	14'19	16'56	20'17	16'16	23'41	24'53
Lincoln .....	13'34	17'21	19'85	20'13	17'63	23'42	21'59
Metropolis .....	41'54	33'96	36'48	34'01	37'03	45'45	45'38
Monmouth .....	22'48	26'10	30'48	31'54	27'98	26'19	29'26
Norfolk .....	8'69	10'19	10'86	11'00	10'18	12'65	13'61
Northampton ....	12'46	12'29	14'01	14'35	13'31	16'33	17'54
Northumberland ..	25'67	25'93	30'17	44'32	40'28	42'34	39'50
Nottingham .....	16'60	16'47	17'69	25'79	19'34	23'35	25'55
Oxford .....	10'28	12'28	14'98	12'84	12'53	13'95	15'52
Rutland.....	8'04	9'31	9'95	18'23	11'59	18'34	19'26
Salop .....	22'17	24'28	24'49	22'37	23'52	22'95	22'30
Somerset .....	14'09	14'72	15'72	15'08	14'88	15'11	16'80
Southampton ....	14'89	16'21	16'95	15'22	15'91	16'12	18'23
Stafford.....	31'76	28'77	30'63	36'53	31'92	30'63	31'26
Suffolk .....	9'29	9'50	9'92	9'76	9'61	10'56	10'45
Surrey .....	2'36	2'04	3'01	2'02	2'28	2'01	2'19
Sussex.....	8'64	10'04	12'31	10'33	9'91	11'18	12'29
Warwick .....	16'97	22'17	27'20	31'12	22'03	32'68	33'24
Westmoreland ....	11'60	13'91	16'68	16'44	15'00	16'58	14'95
Wilts.....	9'22	9'84	9'87	11'26	10'02	12'84	13'75
Worcester.....	16'43	16'92	18'56	19'90	18'05	22'98	22'88
York .....	17'08	20'93	22'98	27'57	22'40	26'82	26'06
Anglesey .....	7'59	7'43	8'25	9'62	8'25	17'34	22'82
Brecon .....	19'96	23'85	25'29	26'68	23'95	29'90	26'13
Cardigan .....	5'57	7'84	10'44	13'19	9'29	18'20	17'90
Carmarthen .....	14'23	14'06	16'48	15'44	14'87	21'38	24'96
Carnarvon.....	9'87	14'68	16'37	16'13	14'49	82'97	24'17
Denbigh .....	13'38	12'99	12'33	13'94	13'25	15'63	19'13
Flint .....	14'73	18'68	20'32	24'07	19'64	23'69	22'75
Glamorgan .....	32'72	25'15	31'51	36'01	31'66	37'35	34'98
Merioneth.....	7'10	12'51	13'64	9'80	10'68	12'00	12'80
Montgomery .....	16'74	17'11	17'73	18'83	17'77	20'39	19'11
Pembroke .....	9'94	12'80	12'86	11'58	11'87	11'91	18'23
Radnor .....	12'39	17'36	19'40	16'76	16'44	21'48	20'24
England and Wales } .....	21'70	22'55	25'42	27'15	24'51	26'60	27'23

TABLE E.—*Number of the Principal Summary Jurisdiction Offences, 1857 to 1878.*

Year.	1 Assaults.	2 Drunkenness.	3 Licensed Victuallers.	4 Stealing. Larceny.	5 Malicious Offences.*	6 Vagrancy.†	7 Ways Acts.‡
1857 ....	76,029	75,859	11,320	38,560	15,293	32,008	17,382
'58 ....	83,086	85,472	13,087	40,226	16,709	32,700	21,603
'59 ....	84,033	89,903	12,744	37,339	15,506	25,757	19,034
'60 ....	77,290	88,361	11,602	36,855	14,327	23,718	20,561
'61 ....	76,681	82,196	10,827	43,192	15,970	26,331	19,900
'62 ....	79,374	94,908	11,625	46,894	17,015	32,570	20,332
'63 ....	86,723	94,745	11,715	45,785	18,724	27,373	20,333
'64 ....	93,374	100,067	12,209	43,817	19,704	29,658	22,513
'65 ....	98,776	105,310	11,859	44,908	20,804	28,924	26,889
'66 ....	93,318	104,368	12,910	44,418	20,393	27,195	31,906
'67 ....	90,158	100,357	12,371	46,344	19,894	31,415	31,384
'68 ....	92,974	111,465	12,550	48,649	21,488	35,365	26,508
'69 ....	94,520	122,310	13,755	47,713	22,789	43,024	28,719
'70 ....	90,431	131,870	11,671	44,757	22,748	41,710	29,837
'71 ....	93,271	142,343	11,604	41,882	22,182	39,532	30,408
'72 ....	96,959	151,084	10,469	41,348	21,017	38,364	29,321
'73 ....	95,964	182,941	13,787	43,340	21,006	37,621	22,603
'74 ....	101,602	185,730	12,967	43,053	25,252	39,642	25,925
'75 ....	101,551	203,989	14,529	38,941	23,181	37,543	28,952
'76 ....	100,422	205,567	15,908	39,482	23,103	38,510	30,346
'77 ....	94,565	200,184	15,906	41,645	23,242	41,894	30,858
'78 ....	91,167	194,549	14,806	43,651	23,532	45,622	31,122

Year.	8 Local Acts.§	9 Police Acts.	10 Breaches of the Peace.	11 Elementary Education.	12 Game Laws.	Total.
1857 ....	21,112	26,913	—	—	5,480	369,233
'58 ....	19,676	24,271	—	—	8,929	404,034
'59 ....	22,554	17,678	10,697	—	8,628	392,810
'60 ....	25,831	16,764	9,154	—	8,654	384,918
'61 ....	33,350	17,651	8,767	—	8,483	394,717
'62 ....	22,043	18,206	9,234	—	10,101	409,008
'63 ....	22,883	16,470	10,620	—	9,638	421,863
'64 ....	26,878	17,869	10,654	—	10,117	440,913
'65 ....	24,784	18,840	10,996	—	10,392	458,914
'66 ....	32,173	19,821	11,346	—	10,831	481,770
'67 ....	27,042	20,825	12,597	—	11,427	474,665
'68 ....	28,844	20,560	13,831	—	11,398	496,752
'69 ....	25,433	25,216	14,157	—	12,291	517,875
'70 ....	35,681	20,320	16,696	—	12,704	526,869
'71 ....	38,333	19,645	18,050	—	10,773	540,716
'72 ....	39,431	18,452	19,869	—	9,571	559,929
'73 ....	39,757	18,111	17,945	6,693	10,870	590,114
'74 ....	44,821	17,836	20,876	15,036	11,955	622,174
'75 ....	44,502	18,915	21,302	21,386	12,398	649,827
'76 ....	46,998	18,656	22,019	25,129	13,315	661,613
'77 ....	45,435	18,217	20,749	23,356	13,521	653,053
'78 ....	47,781	21,092	20,709	40,836	12,583	676,773

\* Destroying fences, walls, fruit and vegetable productions, trees, shrubs, &amp;c.

† Prostitutes, begging, &amp;c.

‡ Stage and hackney carriage acts, highway acts, railway acts, &amp;c.

§ Local acts, and borough bye laws, offences against.

TABLE F.—*Number per Cent. Signing the Marriage Register with Marks; Amount per Head at the Savings Banks; and Proportion per 1,000 of Pauperism in every County in England.*

	Ignorance.				Saving Habits.				Pauperism.			
	Number Signing with Mark. Per Cent. of Marriages.				Shillings per Head at the Savings Banks.				Number of Paupers per 1,000 of Population.			
	1861.	1871.	1877.	Average.	1861.	1870.	1878.	Average.	1861.	1870.	1878.	Average.
Bedford.....	41.9	31.5	26.8	33.0	26	26	38	30	59	72	41	57
Berks.....	29.3	26.4	13.5	19.7	56	61	70	62	68	73	33	58
Bucks.....	35.8	25.9	18.9	20.3	20	27	41	29	65	64	41	51
Cambridge.....	32.9	23.9	19.9	25.0	29	39	54	40	84	73	45	67
Chester.....	34.0	25.1	19.0	26.0	41	43	60	41	32	29	20	27
Cornwall.....	36.5	26.6	20.4	27.8	40	41	53	44	37	50	39	42
Cumberland.....	23.4	21.6	16.6	20.5	38	39	46	41	38	39	28	35
Derby.....	29.0	21.8	17.5	22.7	36	39	57	43	20	24	22	22
Devon.....	24.6	16.5	12.1	17.6	62	64	79	68	54	58	42	51
Dorset.....	26.3	19.8	15.1	20.6	55	55	58	56	66	71	50	41
Durham.....	32.5	29.4	23.2	28.3	16	16	18	17	32	36	22	30
Essex.....	33.2	19.3	15.1	22.5	29	31	46	35	64	65	39	56
Gloucester.....	24.8	17.5	15.0	19.1	47	49	66	54	51	52	39	47
Hereford.....	32.0	23.2	17.2	24.1	41	49	71	53	50	53	39	47
Herts.....	35.8	27.3	22.2	28.3	22	31	47	33	64	68	42	58
Huntingdon.....	31.9	22.9	19.9	24.9	22	22	40	28	60	51	33	48
Kent.....	23.5	14.9	12.1	16.8	32	39	60	44	36	36	28	33
Lancaster.....	39.5	29.6	23.4	30.5	33	35	45	38	28	32	19	26
Leicester.....	27.7	22.6	17.5	22.6	29	34	41	35	52	47	27	42
Lincoln.....	24.7	18.0	15.4	19.3	37	44	58	46	46	50	34	43
Middlesex.....	31.5	11.8	9.4	17.5	53	61	90	68	37	51	27	38
Monmouth.....	44.6	37.4	29.6	37.2	19	24	16	20	53	58	38	49
Norfolk.....	33.5	24.8	20.3	26.3	33	38	45	38	72	70	45	62
Northampton.....	27.8	21.6	16.9	20.3	28	34	44	35	58	63	36	52
Northumberland.....	23.3	18.4	15.5	19.0	51	52	63	55	46	43	26	38
Nottingham.....	30.1	26.3	22.1	26.1	40	49	56	48	53	44	25	40
Oxford.....	28.9	17.7	14.1	20.3	49	55	70	58	66	68	41	58
Rutland.....	22.2	13.5	19.4	19.3	—	—	—	—	53	61	33	49
Salop.....	37.1	27.6	20.0	28.2	73	77	91	80	41	40	21	30
Somerset.....	30.0	21.8	16.9	22.9	64	48	56	49	64	72	48	61
Southampton.....	21.0	15.0	10.0	15.0	29	36	52	39	58	58	39	51
Stafford.....	41.5	39.7	28.6	36.6	20	24	29	24	32	38	30	33
Suffolk.....	35.0	25.2	20.9	27.0	33	36	51	41	72	70	39	60
Surrey.....	20.4	11.7	9.2	13.7	23	31	54	36	47	51	26	41
Sussex.....	20.4	13.7	11.0	15.3	40	48	64	50	59	60	37	52
Warwick.....	28.6	26.4	21.4	25.4	35	33	53	40	39	35	26	33
Westmoreland.....	17.4	11.1	7.5	12.0	14	17	23	18	38	32	20	30
Wilts.....	29.4	19.7	15.4	21.5	42	47	59	49	74	77	50	61
Worcester.....	29.2	25.8	21.0	25.3	35	35	45	38	38	41	26	35
York.....	26.0	21.3	18.7	22.0	32	33	47	36	28	30	23	27
South Wales.....	45.2	38.1	29.6	37.6	17	24	32	24	52	57	42	50
North „.....	44.4	33.9	26.0	34.7	20	20	28	22	72	62	46	60



TABLE G.

	Sex.					
	Of Persons Committed for Summary Jurisdiction Offences.			Of Persons Committed for Trial.		
	Males.	Females.	Total.	Males.	Females.	Total.
1857 ....	291,630	78,203	369,233	15,970	4,299	20,269
'58 ....	319,834	84,200	404,034	13,865	3,990	17,855
'59 ....	310,690	82,120	392,810	12,782	3,892	16,674
'60 ....	305,507	79,411	384,918	12,168	3,831	15,999
'61 ....	315,256	79,461	394,717	14,349	3,977	18,326
'62 ....	325,884	83,124	409,008	15,896	4,105	20,001
'63 ....	336,845	85,018	421,863	16,461	4,357	20,818
'64 ....	352,809	88,104	440,913	15,398	4,108	19,506
'65 ....	370,460	88,454	458,914	15,411	4,203	19,614
'66 ....	393,181	88,589	481,770	14,880	3,969	18,849
'67 ....	384,369	90,296	474,665	15,208	3,763	18,971
'68 ....	395,608	95,144	490,752	16,197	3,894	20,091
'69 ....	417,752	100,123	517,875	15,722	3,596	19,318
'70 ....	427,546	99,323	526,869	14,010	3,568	17,578
'71 ....	435,586	105,130	540,716	12,640	3,629	16,269
'72 ....	448,138	111,791	559,929	11,467	3,334	14,801
'73 ....	472,385	117,729	590,114	11,490	3,403	14,893
'74 ....	500,681	121,493	622,174	11,912	3,283	15,195
'75 ....	524,565	125,262	649,827	11,662	3,052	14,714
'76 ....	534,773	126,840	661,613	12,711	3,367	16,078
'77 ....	528,015	125,038	653,053	12,536	3,354	15,890
'78 ....	548,418	128,355	676,773	13,104	3,268	16,372

TABLE H.—*Persons Previously Committed to any Prison.*

	Total Commit- ments.	Once.	Twice.	Thrice.	Four Times.	Five Times.	Six or Seven Times.	Eight, Nine, or Ten Times.	Above Ten Times.	Total.
1857	141,970	18,374	8,128	4,401	2,980	1,164	2,276	1,700	2,464	42,169
'58	139,437	18,268	7,939	4,345	2,883	1,639	2,217	1,313	2,002	41,580
'59	126,861	16,346	7,201	3,991	2,602	1,699	2,005	1,367	3,217	38,428
'60	116,312	19,576	6,509	3,700	2,359	1,648	1,979	1,206	3,409	35,381
'61	129,238	16,388	7,064	3,925	2,518	1,673	1,978	1,551	3,685	38,782
1862	141,742	18,787	8,371	4,678	3,037	1,953	2,265	1,731	4,048	44,877
'63	144,519	18,816	8,245	4,639	3,083	1,944	2,421	1,943	3,946	45,037
'64	139,286	18,603	8,085	4,621	3,100	2,175	2,606	2,027	3,915	45,192
'65	137,421	18,523	7,809	4,492	2,940	2,011	2,437	2,016	3,646	43,964
'66	136,741	17,897	8,134	4,831	3,102	2,082	2,598	1,978	3,759	44,381
1867	245,184	19,313	8,369	4,799	3,169	2,146	2,663	2,029	3,927	46,415
'68	158,480	21,189	9,263	5,213	3,557	2,438	2,933	2,427	4,538	51,508
'69	173,115	23,228	10,233	5,900	4,093	2,670	3,380	2,820	4,934	57,258
'70	169,134	23,357	10,442	6,188	4,393	3,041	3,728	3,110	5,469	59,698
'71	160,934	21,803	10,147	5,640	4,350	3,042	3,883	3,341	5,678	57,884
1872	158,141	20,925	9,676	5,803	4,290	3,056	3,787	3,482	6,445	57,464
'73	165,142	21,841	10,340	6,195	4,498	3,196	4,149	3,822	7,233	61,274
'74	166,588	21,807	10,362	6,358	4,754	3,234	4,405	4,151	7,996	63,157
'75	170,300	22,433	10,671	6,531	4,933	3,469	4,784	4,316	8,734	65,781
'76	176,599	24,298	11,504	6,956	5,217	3,552	4,979	4,531	10,074	71,118
'77	187,412	25,530	11,900	7,252	5,431	3,748	5,270	4,442	9,813	73,395

TABLE I.—*Ages.*

	Under 12 Years.	12 Years and under 16.	16 and under 21.	21 and under 30.	30 and under 40.	40 and under 50.	50 and under 60.	60 and above.	Age not Ascer- tained.	Total.
1857....	1,877	10,624	29,949	29,738	22,108	12,212	5,268	2,726	321	124,823
'58....	1,553	8,776	26,800	38,413	21,632	12,088	5,297	2,798	805	118,162
'59....	1,378	7,535	22,846	34,830	19,936	11,772	5,261	2,783	731	107,072
'60....	1,480	6,549	20,512	33,048	19,555	17,748	4,807	2,605	230	100,616
'61....	1,666	7,135	23,800	36,914	21,360	12,427	5,244	2,915	674	112,144
1862....	1,531	6,818	26,068	42,823	24,365	14,258	6,152	3,238	222	125,475
'63....	1,549	6,910	27,018	44,066	25,306	14,684	6,365	3,300	229	129,527
'64....	1,552	7,305	25,272	42,174	24,904	15,115	6,651	3,267	866	127,006
'65....	1,600	8,040	25,046	41,507	24,718	14,949	6,467	3,389	322	126,038
'66....	1,637	7,719	24,627	40,657	24,122	15,861	6,335	3,322	981	124,291
1867....	1,590	8,041	26,442	43,515	25,694	15,101	6,542	3,445	1,028	131,398
'68....	1,800	8,279	28,711	46,980	28,203	16,735	7,574	3,942	970	145,157
'69....	1,669	8,645	31,400	51,431	31,425	18,428	9,004	4,988	273	157,254
'70....	1,692	8,306	30,687	51,529	31,392	18,218	9,065	5,067	277	157,223
'71....	1,467	7,510	27,416	47,959	31,416	18,528	9,216	5,380	202	149,094
1872....	1,562	7,801	26,248	46,132	31,054	19,042	9,606	5,424	199	146,473
'73....	1,482	7,877	27,025	47,640	34,114	20,708	10,370	5,815	247	155,413
'74....	1,470	7,473	27,192	48,625	35,079	21,169	10,622	5,813	277	157,840
'75....	1,084	6,128	26,912	50,876	37,093	21,838	11,461	5,771	225	161,488
'76....	998	6,140	26,928	53,067	38,441	22,666	12,606	6,041	273	167,160
'77....	1,065	6,517	28,144	56,973	40,093	23,391	12,893	6,311	269	175,656

TABLE K.—*Birthplace.*

	Total.	England.	Wales.	Scotland.	Ireland.	Colonies and East Indies.	Foreign Countries.	Not Ascer- tained.
1857....	124,823	97,554	2,903	2,399	18,067	652	2,016	1,732
'58....	118,162	93,169	2,867	2,282	15,887	567	1,927	1,963
'59....	107,072	83,376	2,796	2,239	15,258	496	1,682	1,225
'60....	100,614	78,366	2,605	2,080	14,457	434	1,584	1,088
'61....	112,144	87,306	3,002	2,067	16,376	565	1,625	1,233
1862....	125,475	97,507	3,579	2,368	18,223	560	1,814	1,424
'63....	129,527	100,568	3,327	2,419	19,501	581	1,879	1,251
'64....	127,006	98,630	3,443	2,559	18,979	577	1,666	1,156
'65....	126,038	98,656	3,435	2,568	18,569	583	1,626	601
'66....	124,291	96,482	3,573	2,519	18,066	617	1,683	1,351
1867....	131,401	102,472	4,002	2,636	18,354	545	1,860	1,429
'68....	143,157	112,696	3,793	2,841	19,972	571	1,952	1,332
'69....	157,254	123,597	4,175	3,145	22,882	667	2,247	541
'70....	157,223	124,132	4,421	3,328	21,985	681	2,186	490
'71....	149,094	117,300	4,126	3,247	21,174	813	2,031	473
1872....	147,073	115,549	4,100	3,202	20,993	700	2,084	444
'73....	155,413	122,282	4,129	3,476	22,100	671	2,104	651
'74....	157,840	123,152	4,155	3,680	23,371	687	2,160	575
'75....	161,488	125,613	4,608	3,847	24,040	626	2,163	591
'76....	167,160	130,561	4,790	4,183	24,157	708	2,183	578
'77....	175,656	138,767	5,611	4,208	23,630	711	2,257	572

TABLE L.—*Degree of Instruction.*

	Neither Read nor Write.	Read, or Read and Write Imperfectly.	Read and Write Well.	Superior Instruction.	Instruction not Ascertained.	Total.
1857 ....	44,291	72,387	6,348	409	1,388	124,820
'58 ....	41,826	68,227	6,813	397	899	118,162
'59 ....	38,286	62,972	4,619	352	903	107,072
'60 ....	34,279	61,233	4,134	320	648	100,614
'61 ....	38,603	67,972	4,488	309	772	112,144
1862 ....	44,072	75,486	4,823	296	798	125,475
'63 ....	45,209	78,609	4,581	248	880	129,527
'64 ....	44,432	74,722	6,720	234	898	127,006
'65 ....	44,835	75,958	4,093	200	952	126,038
'66 ....	42,564	76,804	3,710	206	1,007	124,290
1867 ....	46,462	79,751	3,925	212	1,048	131,398
'68 ....	50,379	87,393	4,187	233	965	143,157
'69 ....	54,951	96,270	4,752	227	1,024	157,254
'70 ....	53,265	98,482	4,947	252	278	157,223
'71 ....	50,816	92,996	4,790	266	266	149,094
1872 ....	49,345	92,126	4,892	233	487	147,073
'73 ....	51,893	98,112	4,649	220	554	155,413
'74 ....	53,805	98,533	4,891	188	363	157,780
'75 ....	54,046	100,722	6,078	288	354	161,488
'76 ....	53,228	103,646	9,687	292	307	167,160
'77 ....	58,132	110,443	6,585	243	253	175,656

TABLE M.—*Class of Occupations.*

	No Occupation.	Do- mestic Ser- vants.	Labourers, Char- women, and Needle- women.	Factory Workers.	Mechanics, and Skilled Workers.	Fore- men and Over- lookers of Labour.	Shop- men, Shop- women, and Clerks.	Shop- keepers and Dealers.	Profes- sional Em- ploy- ment.	Sailors and Soldiers.	Prosti- tutes.	Not Ascer- tained.
1857	27,719	4,756	50,214	6,621	22,991	185	1,454	3,976	302	5,073	—	1,532
'58	24,789	4,487	49,127	5,703	22,490	162	1,279	3,336	382	5,214	—	1,263
'59	20,767	4,338	45,343	4,816	21,000	134	1,193	3,370	308	4,673	—	1,240
'60	18,949	4,138	43,569	4,547	18,434	105	1,463	3,037	321	5,163	—	888
'61	20,423	4,582	30,160	5,311	20,712	169	1,419	3,524	305	4,617	—	922
1862	20,826	4,858	57,534	6,840	24,150	192	1,621	3,393	325	4,392	—	344
'63	22,783	4,632	59,743	6,918	24,121	151	1,600	3,700	264	4,598	—	1,017
'64	21,949	4,305	59,887	6,485	23,847	137	1,558	3,716	233	3,737	—	952
'65	18,229	4,308	57,214	5,832	23,337	168	1,518	3,853	224	4,189	6,220	946
'66	16,133	4,420	57,308	5,590	23,592	137	1,563	3,804	288	4,292	6,085	1,089
1867	17,320	4,334	60,675	6,051	25,008	142	1,625	4,227	280	4,496	6,112	1,128
'68	18,356	4,527	66,369	7,337	27,039	183	1,698	4,790	265	4,482	7,048	1,063
'69	20,016	4,977	72,640	7,979	29,124	162	2,173	5,195	297	5,202	9,044	445
'70	20,259	7,108	74,458	7,891	27,694	146	3,185	5,404	335	4,838	8,597	458
'71	19,342	4,942	70,533	7,805	25,076	132	2,202	5,876	327	4,677	8,456	326
1872	19,834	4,833	68,136	8,061	23,583	100	2,292	5,420	371	5,040	9,101	302
'73	21,666	4,977	72,212	8,664	24,915	137	2,342	5,641	349	5,109	8,963	438
'74	19,804	4,934	75,207	9,384	26,094	130	2,302	5,317	331	5,157	8,741	379
'75	19,757	4,723	77,167	10,181	27,179	156	2,378	5,063	393	5,138	8,917	436
'76	20,462	4,590	82,645	10,001	26,313	123	2,527	5,309	427	5,256	9,150	357
'77	21,556	4,377	86,207	10,709	28,529	139	2,826	4,902	453	6,207	9,456	295

TABLE N.

	Number of Prisoners.	Number of Persons Committed to			
		Reformatory Schools.		Middlesex Industrial Schools.	Other Industrial Schools.
		Males.	Females.		
1857 .....	14,339	960	159	—	—
'58 .....	16,620	700	149	—	—
'59 .....	15,120	745	177	75	—
'60 .....	11,707	886	212	191	119
'61 .....	13,591	1,001	236	189	62
'62 .....	13,255	847	217	208	369
'63 .....	12,414	733	177	186	308
'64 .....	10,209	797	210	187	350
'65 .....	9,443	961	224	216	421
'66 .....	10,598	1,034	253	208	508
'67 .....	11,647	1,083	256	264	1,112
'68 .....	12,833	1,076	246	99	1,465
'69 .....	13,348	1,066	228	124	1,545
'70 .....	8,804	1,046	267	109	1,450
'71 .....	9,232	1,053	248	116	1,904
'72 .....	8,219	1,054	294	64	1,832
'73 .....	6,687	1,162	258	69	2,266
'74 .....	5,168	1,099	265	52	1,970
'75 .....	4,845	1,069	213	49	1,938
'76 .....	4,925	996	214	61	2,032
'77 .....	5,754	1,202	269	54	2,347

## DISCUSSION on PROFESSOR LEONE LEVI'S PAPER.

THE CHAIRMAN (Sir R. W. Rawson, K.C.M.G.) said that no gentleman who had not made a similar attempt with Professor Levi to analyse the mass of figures he had dealt with, for twenty-two years, could have any idea of the labour that he must have devoted to the subject. They were all able to appreciate the value of the work done, but they were not perhaps all aware of the amount of labour incurred, and the debt they owed to Professor Levi for having undertaken it. He fully and heartily sympathised with Professor Levi. Forty years ago he (the Chairman) analysed the first five years' returns published by the Government on this same subject, and his papers appeared in the second and third volumes of the Society's *Journal*. He was thus induced to rise early, and to ask the Professor, when he publishes his paper, to state distinctly the sources of his information, so as to enable future observers to compare his results with those which they might obtain. Looking back to his own paper, he found that in the years 1834-38, the only information then accessible was the returns of the quarter sessions,



assizes, and local courts. The average of these five years showed that the committals corresponded with what the Professor in his fifth table calls "criminal proceedings," where he says, "If we now follow the results of the preliminary proceedings as regards the persons apprehended for indictable offences, we shall see what proportion are discharged from want of sufficient evidence or other causes, and how many are finally committed for trial." In the five years which he (the Chairman) dealt with, he found that the numbers committed for trial were as many as 22,000. The number committed and bailed in 1878—which is forty years later—was only 16,700. It was impossible to compare the two analyses, and it was most desirable that such a comparison should be made, so as to see whether the progress of crime in England was favourable or unfavourable. It was very desirable that they should be able to compare similar things—to contrast *similia similibus*—but as matters stood, he could not compare Professor Levi's results with what he obtained in 1838; another suggestion he would make, and he thought it was a most important one, was that in any statements with regard to the comparative amount of crime, the actual numbers should be given, and not only the proportions. The Professor had pointed out (and he hoped on examination it would appear that his inferences would be found correct) that the effect of education in late years had had a material effect in reducing the number of our criminal juvenile population; but from the statement, as it appeared here, compared with his statement of forty years ago, the results were positively startling, and unless the numbers are given they would, he believed, be led to false inferences. In Professor Levi's statement he found that the proportion of criminals in 1878, under 16, was about 4 per cent., whereas in his (the Chairman's) table it was nearly 12 per cent. Professor Levi said the number of very young people sent to reformatories might affect this, but he found that between 16 and 21, where the same remark did not apply, whereas in the Professor's table 16 per cent. were committed in 1878, 30 per cent. were committed forty years ago. Then between 21 and 30 there was no change, 32 per cent. being the number in both periods; from 30 to 40 there was an increase from 15 to 22½ per cent.; between 40 and 50, an increase from 7 to 14 per cent., and so on. But they were really comparing utterly different things, because in these criminal proceedings before magistrates, several different and new classes of offences had been brought into this statement. In 1878 alone more than 40,000 persons, adults and children, had been brought up for offences against the Education Act, most of them for not sending children to school, which certainly was not a crime, though it was a legal offence. No doubt a vast number of adults had been convicted for not carrying out sanitary and other police laws, which are now enforced much more strictly than they used to be. All these punishments fell upon persons of a different age from those included in the returns of forty years ago, and therefore it was absolutely necessary that not only the proportions, but the number should be given, so that they might compare the numbers with the population. In the paper which he drew up, he made a calcula-

tion of the population and compared the number of criminals at each stage of life. In that way a more correct inference might be drawn as to the existence of crime at different ages than by stating the percentage proportion of offenders at each age. He did not at all wish to find fault with the paper, on the contrary, but he was anxious to point out to the author that the value of so great and important a paper would be very much enhanced if he would eliminate, or enable others to eliminate, possible causes of erroneous inference.

Mr. GIFFEN said he did not profess to be especially acquainted with the statistics of crime, but there were one or two points on which he could perhaps throw some light. He wished, to begin with, to express his very high opinion of Professor Levi's paper. Any one acquainted with the volume of the judicial statistics of England and Wales, would recognise the amount of labour which such a task must have involved, for the statistics were very complicated, and there was a great quantity of them to deal with. To have dealt with them as Professor Levi had done in a comparatively short paper, was he thought a very valuable work for him to have done. He thought he could give an explanation of one of the first points to which the Chairman had called attention—with reference to the source from which Professor Levi had got his figures. Whatever doubts there might have been as to the statistics of forty years ago, the sources from which Professor Levi had drawn his observations were beyond all doubt whatever. These statistics were all embodied in an annual volume which any one could obtain, and there was no doubt that the return was an absolutely exhaustive one of all the indictable crimes in England and Wales, including every court which has jurisdiction over indictable offences. He did not think anything could be more complete than the statement which Professor Levi had given. The question would be to compare these with the returns of forty years ago, and if it be the case that the figures were so much larger forty years ago, it would follow that the diminution of serious crimes in England must be really greater than appears on the surface of the figures; naturally the Chairman is astonished that there should have been such a reduction. He had taken occasion some time ago to look into the subject, and he was astonished at the great diminution; but he could say that it had been quite gradual for forty years. The only point in the paper itself to which he wished to call attention, and to elicit an explanation from Professor Levi, was with reference to the statement:—"An increasing proportion of persons seems thus annually drawn to a criminal life." Now, he confessed, that in looking at the table on which this statement was founded, that of the commitments for trial, he did not form the same inference. It did not seem to be consistent with the fact of the number of convictions for serious crimes in England and Wales having been diminished, and it would be noticed in reference to the table of the commitments for trial, that the proportion per million of the people of good character, from 1857 to 1876 was 272; in 1877 it was 271; and in 1878, 270. He did not think a

statement like that with reference to persons of previously good character showed that an increasing proportion of persons seemed drawn to a criminal life. He thought the same inference would be drawn if they took the case of the persons whose character is unknown. The fact was, he believed, that the increasing proportion of commitments was due to the increasing number of things that had been made offences, and the increasing powers of the police courts. He thought it was a wrong inference to say that "an increasing proportion of persons seems thus annually drawn to a criminal life," and he was of opinion that Professor Levi would acknowledge this error, if he compared the table with that given at an earlier page, where he distinguished indictable offences from those for which people had been brought before the police courts. The offences against local laws and other acts increased, but the offences against the person and against property did not show an increase. The paper was so excellent that there was very little to observe with regard to it, except by way of commendation.

Mr. C. WALFORD thought the paper would be of great importance to those who were considering the alteration of the criminal code, and with respect to the admirable chart now exhibited, he did not know that he had ever seen one which presented in itself the elements of use more markedly than that did. It showed what effect the educational code had, in the last ten years, produced on the people, not only as shown by the power of writing in the marriage registers, and so on, but it showed what effect education had had with reference to the nature of the crimes committed in the several counties, and that by a continuous process of observation would offer a marked test of the benefit, and the degree of the benefit, resulting from education. There were many points upon which the paper ought to be discussed in detail, but he would content himself by pointing out these two, which would be valuable for a long time to come.

Mr. WILLIAM TALLACK (Secretary of the Howard Association) cordially concurred in what had been said by the Chairman and the succeeding speakers as to the excellence of the paper to which they had listened. He was struck with the extreme interest of the chart, which he had been particularly interested in, looking at it as a Cornish man. Cornwall, with Cumberland and Westmoreland, held the honourable position of having the least amount of crimes and offences, though Cornwall was one of the lowest with regard to ignorance. He had been impressed with the large proportion of horses which, according to Surgeon-General Balfour's paper, died in France owing to bad ventilation. It was well known what an effect ventilation had on human life, and he believed an investigation would show that healthy dwellings and fresh air had a good deal to do with regard to the moral as well as the physical life of the people of Cornwall, Cumberland, and Westmoreland. He was a native of Cornwall, and he had lived in Westmoreland, and he thought there were many points in common between them. Cornwall, as compared with some other counties, was less instructed:



but he believed the value of religion, irrespective of mere sectarian influences, was shown by the chart. The chief religion of Cornwall was Methodism, and the Church of England was principally followed in Cumberland. The general results, however, were excellent in both counties, showing that, after all, what might be called a common-sense religion had more to do in making people virtuous than school learning. They might go on all day discussing the interesting points in the chart and in the paper, but he would invite the attention of gentlemen present to a paper read by a friend of his, Mr. Joseph John Fox, at the Oxford meeting of the British Association, many years ago, on "the Importance of a Uniform Basis of Statistics;" for there was hardly a department of human investigation where real uniformity was more needed than in dealing with the subject of crime. A remark made use of by the Chairman brought a curious incident to mind as to the importance of numbers as well as proportions. About a hundred years ago, in a Cornish village 25 per cent. of the people were executed in one year: but there were only four deaths in this parish, and one of the four was an execution on the gallows: so it was very true that a fourth of the population went to the scaffold; but the actual figures corrected the first impression as to the criminality of the people.

MR. ROWLAND HAMILTON said gentlemen could hardly have any appreciation of the enormous mass of statistics that Professor Levi must have gone through, and their importance. Even where the results brought apparent contradictions, the work of the statistician was not the less useful. It was often like that of a man getting a public or private office out of disorder, where the first wholesome thing was to show the confusion in which the accounts stood. He noticed in Salop there were large savings and great pauperism. Now this suggested a large field of inquiry to those who could carry it out. He had taken great interest in the subject of recommitments, and perhaps few questions were of more urgent importance. A large proportion were committed once, and then a less proportion of those committed twice; but there were a large number who seemed to go on time after time, and to lead a hopelessly lawless life. He would like to know what became of them after these recommitments. Were they sent out of the country altogether, having fallen more deeply into crime, or gone out of it voluntarily in one way or another? He had been assured by a gentleman who took great interest in the matter, that a large proportion of those who retrieve themselves do so in districts in which they were least known. With respect to the assumed evil of police supervision, was it not the worst policy that could be adopted to send out a criminal who had, there was reason to hope, learned the value of industry, with a lie in his right hand, by entering a service under something very like false pretences? A man thus introduced into a situation, however well he might be doing, was absolutely at the mercy of all his old associates who might happen to find him out. It was not only the policeman who might, as it was said, make mischief, but any of the man's old chums might exercise the most potent and injurious influence over him. Arguments of this nature



appeared to him to be exceedingly strong against the idea of sending a man out to attempt to regain honest courses, while keeping his antecedents a dead secret from those who might be a help to him, leaving him, alone and unaided, against those who would drag him back to crime. It seemed to be the truth that there were men absolutely unable to maintain an independent course of life, and that these should be subjected to a long term of probation, not so much of a penal character as of a disciplinary character. Many such men were capable of doing good work under supervision, who were quite unable to stand alone.

Mr. G. PHILLIPS BEVAN said one point of great interest in this paper was the connection of locality with crime, especially in considering crime spread over so many years. He had been for twenty-five years on the bench in a Welsh county, thickly populated with coal miners and iron workers, and in that space of time he had seen a good deal of alteration in the character of the people and the country, arising mainly from the general extension of railways and communications. When he first went into Wales, about twenty-eight years ago, Welshmen were really Welshmen, with a marked simplicity of character, a good deal influenced by their chief religion—Methodism—which kept them to a great extent from serious crime. He had not resided there now for six or eight years; but while he was there, he had ample reasons for perceiving how considerably crime had increased in that time, and he connected it very much with the immigration of strangers amongst the industrial population. The effect of bad associates was very marked, and this was a factor which should not be omitted in their calculations as to the spread of crime in different localities.

Professor LEONE LEVI thanked the members for their kind appreciation of his paper. With reference to the sources of information, all he needed to say was, that it was derived exclusively from the judicial statistics, which gave a complete view of the state of crime and of all legal proceedings in the country. As stated in the paper, the reduction in the number of persons committed for trial was owing partly to the extension of summary jurisdiction, but partly also from an absolute decrease of heavy crimes. The effect of education upon crime could be seen in the separate tables in the appendix. The difficulty he had was, to comprise within the ordinary limits, all the information pertaining to the subject of the paper. In an appendix to the paper there will be found much valuable information, which he hoped would be useful to all future inquirers on the subject.

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*On the INCREASE of POPULATION in ENGLAND and WALES.*

*By R. PRICE WILLIAMS, M. INST. C.E.*

[Read before the Statistical Society, 15th June, 1880.]

CONTENTS :

	PAGE		PAGE
The Population between 1700 and 1801 .....	462	Future Increase of the Population of England and Wales .....	471
The Population between 1801 and 1871 .....	464	Estimate of the Census of 1881....	472
The Population and Rate of Increase in the Principal Towns ...	466	Future Increase of the Population of Great Britain in Connection with the Question of the Coal Supply.....	472
The Population of Towns above 2,000 and under 20,000 Inhabitants .....	470	Future Increase of the Population of London .....	475
The Population of the Rural Districts .....	470		

IN order to realise the enormous increase in the population of England and Wales during the present century, it is only necessary to compare it with that of the preceding one.

In the absence of any census returns, the amount of the population prior to 1801, can only be approximately arrived at, from the registers of births and deaths, and the poll and hearth tax returns: the following results obtained in this way, under what are known as the "Population Acts," afford the means of approximately determining the amount of the population in each decade:—

*Population of England and Wales, 1700-1801.*

Year.	Population.	Increase.	Decrease.	Percentage per Decade.
	No.	No.	No.	Per cent.
1700 .....	5,475,000	—	—	—
'10 .....	5,240,000	—	235,000	Decrease. — 4'92
'20 .....	5,565,000	325,000	—	Increase. 6'20
'30 .....	5,796,000	231,000	—	4'15
'40 .....	6,064,000	268,000	—	4'62
'50 .....	6,467,000	403,000	—	6'64
'60 .....	6,736,000	269,000	—	4'16
'70 .....	7,428,000	692,000	—	10'27
'80 .....	7,953,000	525,000	—	7'07
'90 .....	8,675,000	722,000	—	9'08
1801 .....	8,892,536	217,536	—	2'51
		3,652,536 — 235,000	235,000 —	+ 54'70 — 4'92
		3,417,536	—	+ 49'78
Average decennial rate of increase .....				+ 4'98
Average taking initial and terminal.....				4'97

Although the results given in this table disprove the contention of Dr. Price, that the population had been continually declining in England from the period of the Revolution until 1777, they show very clearly that there was a considerable decrease in the first decade, and that the increase during the first half of the century was very slight; this is further confirmed by the small increase in the value of the exports in the same period, as shown in the following table:—

Year.	Exports.	Increase.	Rate of Increase per Decade.	Imports.	Increase.	Rate of Increase per Decade.
	£	£	Per cent.	£	£	Per cent.
1700 ....	6,097,120	—	—	4,753,777	—	—
'50 ....	10,130,990	4,033,871	10·69	7,289,582	2,435,805	8·93
'75 ....	16,326,363	6,195,372	21·03	14,815,855	7,526,273	32·80
1800 ....	38,120,120	22,793,767	40·38	30,570,605	15,745,750	33·61

The total increase in the value of the exports during the first fifty years it will be seen only amounted to 4,033,871*l.*, or to an average increase of 10·69 per cent. in each decade. The rate of increase, however, in the next twenty-five years was much more rapid, while during the last twenty-five years it amounted to as much as 40 per cent. per decade.

It was not in fact until the first decade of the second half of the last century, which witnessed the conclusion of the Seven Years' War, the invention and introduction into common use of the spinning jenny by Hargreaves, and the invention by Watt of his earliest form of steam engine, that any indications are afforded of that rapid increase of population which has so markedly characterised the present century; the increase in the decade 1760-70, however, amounted to as much as 10·27 per cent. In the diminished rate of increase of the next decade viz., 7·07 per cent., may be traced the effects of the war with America which begun in 1773, and that which shortly followed with France.

It is however worthy of note, that it was about the middle of this particular decade that Watt's steam engine, which has indirectly had so large a share in promoting the increase of the population of this country, began to be generally used on a large scale in the manufacturing districts.\* The effects of the general adoption of steam power in manufactories, and of improvements in machinery, are clearly indicated in the higher rate of increase of the population (9·08 per cent.) which obtained in the next decade (1780-90); and concurrently with all this, it should be observed that the country was beginning to recover from the effects of the great stagnation of trade due to the American War.

\* 1775.—Watt's engines erected upon a large scale in manufactories, and his patent renewed by Act of Parliament.

The increase during the last ten years of the century, marked as it was, as a period of war abroad, bad harvests\* and troubles at home was—with the exception of the actual decrease in the first decade—the smallest which had occurred in any decade during the century.

The total increase in the population during the whole century only amounted to 3,417,536, giving an average of 4·97 per cent. per decade, an amount of increase which, as will be seen from the following table, it took little more than the two first decades of the present century to equal:—

*Population of England and Wales, 1801-1871.*

Period.	Population.	Amount of Increase.	Percentage of Increase.
			Per cent.
1801 .....	8,892,536	—	—
'11 .....	10,164,256	1,271,720	14·30
'21 .....	12,000,236	1,835,980	18·06
'31 .....	13,896,797	1,896,561	15·81
'41 .....	15,909,132	2,012,335	14·48
'51 .....	17,927,609	2,018,477	12·69
'61 .....	20,066,224	2,138,615	11·93
'71 .....	22,712,266	2,646,042	13·19
	—	13,819,730	—

During the first decade of the present century (1801-11) the population of England and Wales increased as much as 14·30 per cent., while in the next decade (1811-21) it reached the maximum attained in this century, viz., 18·06 per cent.: as from that period down to the census of 1861, the rate of increase of the population has continuously diminished, the decrement during the several decades being as follows:—

Decade.	Rate of Increase.	Decrement in Rate of Increase Expressed as a Percentage on the Rate of Increase.	Increment in Rate of Increase.
	Per cent.	Per cent.	Per cent.
1801-11 .....	14·30	—	—
'11-21 .....	18·06	—12·46	—
'21-31 .....	15·81	—8·41	—
'31-41 .....	14·48	—12·36	—
'41-51 .....	12·69	—5·99	—
'51-61 .....	11·93	—	+10·56
'61-71 .....	13·19	—	—
		—39·22	+10·56
		+10·56	
		5) —28·66	
Average decrement.....		—5·73	
Average decrement for the five decades taking the initial and terminals .....		= 6·09	

\* 1795 and 1797.



A remarkable increment in the rate of increase occurred, however, during the last decade (1861-71), to which further reference will be made.

In order to ascertain the respective rates of increase or decrease of the town and rural population, together with the decrements in their rates of increase, the writer has for some years past been engaged on the analysis of the census returns contained in the accompanying tables, viz. :—

*Tables A<sup>1</sup> to A<sup>52</sup>.*\*—Population, and its rates of increase or decrease per cent. of each county in England and Wales for each decade from 1801 to 1871, subdivided as follows :—

1st.—Large towns, containing a population of 20,000 inhabitants and upwards.

2nd.—Small towns, containing a population from 2,000 to 20,000 inhabitants.

3rd.—Rural districts, including small towns or places with less than 2,000 inhabitants.

*Table B.*†—Showing the aggregate population of the large towns of 20,000 inhabitants and upwards in each county in England and Wales, and the rates of increase or decrease per cent. for each decade 1801-71. (Summarised from Tables A<sup>1</sup> to A<sup>52</sup>.)

*Table C.*†—Showing the aggregate population of the small towns containing from 2,000 and under 20,000 inhabitants in each county in England and Wales, and the rates of increase or decrease per cent. for each decade 1801-71. (Summarised from Tables A<sup>1</sup> to A<sup>52</sup>.)

*Table D.*†—Showing the aggregate population of large and small towns combined, in each county in England and Wales, and the rates of increase or decrease per cent. for each decade 1801-71. (Summarised from Tables A<sup>1</sup> to A<sup>52</sup>.)

*Table E.*†—Showing the aggregate population of the rural districts, including small towns or places with less than 2,000 inhabitants in each county in England and Wales, and the rates of increase or decrease for each decade 1801-71. (Summarised from Tables A<sup>1</sup> to A<sup>52</sup>.)

*Table F.*†—Showing the total population and the rates of increase or decrease per cent. of each county in England and Wales for each decade 1801-71. (Summarised from Tables A<sup>1</sup> to A<sup>52</sup>.)

*Table G.*†—Showing the population and rates of increase or decrease per cent. of each town of 20,000 inhabitants and

\* These tables are not printed.

† See Appendix.

upwards, in England and Wales, for each decade 1801-71.  
(Summarised from Tables A<sup>1</sup> to A<sup>52</sup>.)

*Population and Rates of Increase in the Principal Towns.*

Attention has already been drawn to the fact that the maximum rate of increase of the entire population of England and Wales (18·06 per cent.) occurred in the decade 1811-21. In the case of

*Summary of*

Decade.	Large Towns over 20,000.				Small Towns over 2,000 and under 20,000.				Total
	Population.	Rate of Increase per Cent.	Decrement in Rate of Increase.	Increment in Rate of Increase.	Population.	Rate of Increase per Cent.	Decrement in Rate of Increase.	Increment in Rate of Increase.	Population.
1801.....	2,404,153	19·71	—	Per cent.	1,211,092	13·10	Per cent.	Per cent.	3,615,245
'11.....	2,878,039				1,369,757				4,247,796
'21.....	3,582,029	*26·19	—	Per cent.	1,630,046	*19·00	—21·16	Per cent.	5,212,075
'31.....	4,520,055				1,874,112				6,394,167
'41.....	5,572,175	23·28	—11·11	+1·20	2,107,562	14·98	—16·82	Per cent.	7,679,737
'51.....	6,885,001				2,328,941				9,213,942
'61.....	8,218,209	23·56	—17·83	+1·20	2,499,051	12·46	—15·74	Per cent.	10,717,260
'71.....	9,800,887				2,775,739				12,576,626
		*19·25	—0·57	+1·20		7·31	—30·38	+51·44	
			—29·51	+1·20			—84·10	+51·44	
			+1·20				+51·44		
			4) —28·31				5) —32·66		
Average decrement .....			—7·08	—	—	—	—6·53	—	—
*Average decrement, initial and terminal .....			—7·40	—	—	—	—10·24	—	—

The rates of increase of nearly all the most populous towns such as Liverpool, Manchester, Leeds, and Birmingham, attained their maximum in the same decade as in the case of the aggregate town population, viz., 1821-31, the rate of increase of the population in

the aggregate population of the larger towns of over 20,000 inhabitants, it will be found that the maximum rate of increase, viz., 26·19 per cent., occurred a decade later (1821-31): the rate of increase from that time having continually diminished, the decremental rate has, however, varied considerably, being as much as 11·11 per cent. in the following decade (1831-41), while in the next there was even a slight increment in the rate of increase of 1·20 per cent. as shown in the following table:—

Tables B to E.

Town Population.			Rural Districts and Small Towns under 2,000.				Total Population of England and Wales.			
Rate of Increase per Cent.	Decrement in Rate of Increase.	Increment in Rate of Increase.	Population.	Rate of Increase per Cent.	Decrement in Rate of Increase.	Increment in Rate of Increase.	Population.	Rate of Increase per Cent.	Decrement in Rate of Increase.	Increment in Rate of Increase.
	Per cent.	Per cent.			Per cent.	Per cent.			Per cent.	Per cent.
17·50	—		5,277,291	12·11	—		8,892,536	14·30	—	
22·70	—		5,916,460	*14·74			10,164,256	*18·06	—	
*22·69	Nil		6,788,661	10·52	—28·63		12,000,236	15·81	—12·46	
20·10	—11·42		7,502,630	9·69	—7·89		13,896,797	14·48	—8·41	
19·98	—0·60		8,229,395	5·88	—39·32		15,909,132	12·69	—12·36	
16·32	—18·32		8,713,667	7·29	—	+23·98	17,927,609	11·93	—5·99	
*17·35	—	+6·31	9,348,964	*8·41	—	+15·36	20,066,224	*13·19	—	+10·56
			10,135,640				22,712,266			
	—30·34 +6·31	+6·31			—75·84 +39·34	+39·34			—39·22 +10·56	+10·56
	4) —24·03				5) —36·50				5) —28·66	
—	—6·00	—	—	—	—7·30	—	—	—	—5·73	—
—	—6·49	—	—	—	—10·62	—	—	—	—6·09	—

those large towns, constituting about 75 per cent. of the entire population of the large towns, practically governing the period of the maximum rate of increase, as will be seen from a reference to the following table:—

*Population and Rates of Increase of Population in the Principal*

	1801.	1811.		1821.		1831.	
	Population.	Population.	Rate of Increase.	Population.	Rate of Increase.	Population.	Rate of Increase.
London .....	958,863	1,138,815	18'77	1,378,947	21'09	1,654,994	20'02
Liverpool .....	82,295	104,104	26'50	138,354	32'90	201,751	45'82
Manchester .....	76,788	91,130	18'68	129,035	41'60	187,022	44'93
Birmingham .....	70,670	82,753	17'10	101,722	22'92	143,986	41'55
Leeds .....	53,162	62,534	17'63	83,796	34'00	123,393	47'25
Sheffield .....	45,755	53,231	16'34	65,275	22'63	91,692	40'47
Bristol .....	61,153	71,433	16'81	85,108	19'14	104,408	22'68
Wolverhampton .....	30,584	43,190	41'22	53,011	22'74	67,514	27'36
Bradford .....	13,264	16,012	20'73	26,307	64'30	43,527	65'46
Newcastle .....	33,048	32,573	-1'44	41,794	28'31	53,613	28'29
Stoke-upon-Trent .....	23,278	31,557	35'57	40,237	27'51	51,589	28'21
Hull .....	29,580	37,005	25'10	44,520	20'31	51,911	16'60
Salford .....	18,088	24,744	36'80	32,600	31'75	50,810	55'86
Portsmouth .....	33,226	41,587	25'16	46,743	12'40	50,389	7'80
Oldham .....	21,766	29,479	35'43	38,201	29'59	50,513	32'23
Sunderland .....	24,998	25,821	3'29	31,891	23'51	40,735	27'73
Brighton .....	7,440	12,205	64'05	24,741	102'71	41,994	69'73
Total .....	1,583,958	1,898,173	19'84	2,362,282	24'45	3,009,841	27'41
Deduct London ....	958,863	1,138,815	18'77	1,378,947	21'09	1,654,994	20'02
Total (ex-London)	625,095	759,358	21'48	983,335	29'50	1,354,847	37'77
TOTAL OF LARGE							
Total .....	3,615,245	4,247,796	17'50	5,212,075	22'70	6,394,167	22'68
Deduct London ....	958,863	1,138,815	18'77	1,378,947	21'09	1,654,994	20'02
Total (ex-London)	2,656,382	3,108,981	17'04	3,833,128	23'29	4,739,173	23'64
ENGLAND							
Total .....	8,892,536	10,164,256	14'30	12,000,236	18'06	13,896,797	15'81
Deduct London ....	958,863	1,138,815	18'77	1,378,947	21'09	1,654,994	20'02
Total (ex-London)	7,933,673	9,025,441	13'76	10,621,289	17'68	12,241,803	15'26

The predominating influence of the immense population of London as affecting the rates of increase of the aggregate town population in England and Wales is also very noticeable.

In the case of some large towns, such as Wolverhampton, Newcastle-on-Tyne, Hull, Merthyr, Sunderland, and Preston, the period of maximum rate of increase occurred in the decade of 1831-41, while in the case of London itself, its period of maximum was reached in the next decade 1841-51. (*Vide* Appendix, Table G.)



## Towns of England and Wales, between 1801 and 1871.

1841.		1851.		1861.		1871.		
Population.	Rate of Increase.	Population.	Rate of Increase.	Population.	Rate of Increase.	Population.	Rate of Increase.	
1,948,417	17'73	2,362,236	21'24	2,803,989	18'70	3,254,260	16'06	London
286,487	42'00	375,955	31'23	443,938	18'08	493,405	11'14	Liverpool
242,983	29'92	316,213	30'14	357,979	13'21	379,374	5'97	Manchester
182,922	27'04	232,841	27'29	296,076	27'16	343,787	16'11	Birmingham
152,074	23'24	172,270	13'28	207,165	20'26	259,212	25'12	Leeds
111,091	21'16	135,310	21'80	185,172	36'85	239,946	29'58	Sheffield
125,146	19'87	137,328	9'73	154,093	12'20	182,552	18'47	Bristol
93,245	38'11	119,748	28'42	147,670	23'32	156,978	6'30	Wolverhampton
66,715	53'27	103,778	55'55	106,218	2'35	145,830	37'29	Bradford
70,337	31'19	87,784	24'81	109,108	24'29	128,443	17'72	Newcastle
68,444	32'67	84,027	22'77	101,207	20'45	124,493	23'00	Stoke-upon-Trent
67,308	29'66	84,690	25'82	97,661	15'32	123,408	26'37	Hull
68,386	34'59	85,108	24'45	102,449	20'38	121,401	18'50	Salford
53,032	5'24	72,096	35'95	94,799	31'49	113,569	19'80	Portsmouth
60,451	19'67	72,357	19'70	94,344	30'39	113,100	19'88	Oldham
53,335	30'93	67,391	26'36	85,797	27'31	104,490	21'79	Sunderland
49,170	17'09	69,673	41'70	87,317	25'33	103,758	18'83	Brighton
3,699,543	22'92	4,578,805	23'77	5,474,982	19'57	6,388,006	16'68	Total
1,948,417	17'73	2,362,236	21'24	2,803,989	18'70	3,254,260	16'06	Deduct London
1,751,126	29'25	2,216,569	26'58	2,670,993	20'50	3,133,746	17'32	Total (ex-London)
AND SMALL TOWNS.								
7,679,737	20'10	9,213,942	19'98	10,717,260	16'32	12,576,626	17'32	Total
1,948,417	17'73	2,362,236	21'24	2,803,989	18'70	3,254,260	16'06	Deduct London
5,731,320	20'93	6,851,706	19'55	7,913,271	15'49	9,322,366	17'78	Total (ex-London)
AND WALES.								
15,909,132	14'48	17,927,609	12'69	20,066,224	11'93	22,712,266	13'19	Total
1,948,417	17'73	2,362,236	21'24	2,803,989	18'70	3,254,260	16'06	Deduct London
13,960,715	14'04	15,565,373	11'49	17,262,235	10'90	19,458,006	12'72	Total (ex-London)

Several remarkable instances are also to be met with of large increments occurring in the rates of increase of town populations during the last decade (1861-71): notably in the case of Leicester, Dudley, Derby, Rochdale, and some few other towns. It should be observed, however, that the alteration of the boundary in some other cases explains the higher rate of increase in the last decade.

*Decrements in the Rates of Increase in Town Population.*

The decrements in the rates of increase of the town population

are clearly indicated by the curved outlines on the diagrams which accompany this paper.\* It is worthy of remark that in the case of the population of London, the decrements are very slight indeed, and the absence of the S shaped outlines of its population on the diagram, so conspicuous a feature in the population diagrams of most of the other large towns, shows that London has not yet reached that declining stage in the rate of its increase of population long since arrived at in the case of Liverpool, Manchester, and many other large towns.

*The Population of Towns above Two Thousand and under Twenty Thousand Inhabitants.*

The increase in the population of these towns has been much less rapid than in the case of the large towns, their aggregate population having been little more than doubled in the course of seventy years. Their maximum rate of increase, viz., 19 per cent., was reached, as in the case of the population of the rural districts, to which reference will presently be made, in the decade 1811-21; from that time down to the decade 1851-61, a rapid decrement of 84·10 per cent. occurred in this rate of increase, followed, however, in the last decade, 1861-71, by a somewhat remarkable rise of 51·44 per cent. The effect of this increase is clearly discernible in adding an increment of 6·13 per cent. to the rate of increase of the town population, and along with the increase observable in the case of the rural population in this decade, materially affecting the rate of increase of the entire population of England and Wales. (*Vide* Summary of Tables B to E, p. 467.)

*Population of the Rural Districts.*

The increase in the population of the rural districts of England and Wales during the first decade of this century was 12·11 per cent., or very similar to that of the smaller towns, and as in that case the maximum rate of increase (14·74) was reached in the following decade (1811-21), from that time down to the period of the census of 1851 the increase of the rural population was relatively very small, having in a period of thirty years only increased from 6,788,661 to 8,713,667, or 28·35 per cent., the decrement in the rate of increase during that time being rapid and continuous. From that period, however, up to 1871, there has been a rapid and continuous increment in the rate of increase, the effect of which, combined with that due to the increase of the population of the small towns, being such as to reduce in 1861 the decrement in the rate of increase of the entire population of England and Wales to 5·99 per cent., and in the following decade of 1871 to cause an increment of 10·56 per cent. in the rate of increase.

\* See diagrams Plates 2 to 6.

The cause of the slow increase of the rural population between 1821 and 1851, is evidently in a great measure due to immigration into the towns; this will at once be seen on referring to the diagrams, and comparing the outlines showing the rates of increase of the town, rural, and total populations. It will not fail to be noticed that the periods of greatest increase in the town populations are coincident with those of greatest decrease in the case of the rural population. This is especially noticeable in the decade 1841-51, as may be seen from a reference to the first diagram on Plate 2, which shows that the aggregate population of the towns, which up to this period was considerably less than the population of the rural districts, equalled it about the middle of the decade, and at the end of the decade considerably exceeded it.

*Future Increase of the Population of England and Wales.*

It is unnecessary here to refer to the checks on the increase of population due to the limited area for food production in this country, as since Malthus's time, through the largely increased transit facilities afforded by the introduction of steam navigation, there is practically no limit to the area from which the food supplies of this country can be obtained, so long at least as those facilities for cheap and rapid communication with the great food producing countries of the world continue.

The rate of the future increase of the population of this country depends necessarily to a great extent upon the continuous growth of its trade and commerce, and upon the further development of that remarkable industrial activity which has been brought about during the last forty years, in a great measure by the agency of railways and steam navigation.

It cannot, however, be expected that there will be a repetition during the next forty years of the same rapid rate of commercial development which has been experienced during the last, and which has resulted from the creation as it were, in that short time, of an entirely new and rapid system of locomotion; still by means of the improvements which are continually being made in mechanical appliances, and the economies resulting therefrom, there is everything to indicate that the population of this country will continue to increase at the diminished or decremental rate which has occurred since the rate of increase of the population attained its maximum.

In the writer's opinion, in estimating the future population of England and Wales, it is putting it at its highest to assume a continuation of the 5.73 per cent. decrement, which during the last fifty years has obtained in the rate of increase of the population.

*Estimate of the Census of 1881.*

The following estimates of the population of England and Wales for the census year 1881 have been prepared by the writer on the basis indicated in this paper:—

<i>Population of the large towns of 20,000 inhabitants and upwards, assumed to increase in 1871 at the average decremental rate of large towns, viz., 7'10 per cent. ....</i>	11,771,491
<i>Population of the small towns with over 2,000 and under 20,000 inhabitants, assuming the rate of increase of these towns during the last decade, 1871, viz., 11'07 per cent., to continue .....</i>	3,082,970
<i>Population of the rural districts, including small towns under 2,000 inhabitants, assuming the average decrement in the increment of the rate of increase of the last two decades, viz., 34'237 per cent.,* to continue .....</i>	11,082,339†
<b>Total population of England and Wales in 1881</b>	<b>25,936,800</b>
<i>The population of England and Wales, assuming the average decremental rate of increase of the total population during the last fifty years to continue, viz., 5'73 per cent. ....</i>	25,535,000

In the opinion of the writer, the estimated increase of the population of the small towns, viz., 11'07 per cent., is too high, and probably the actual population will amount to a mean of the two results, viz., 25,735,900.

*Future Increase of the Population of Great Britain in connection with the Question of the Coal Supply.*

In the estimate of the future population of Great Britain prepared by the writer for the Commissioners appointed to inquire into the question of the coal supply, and given at p. xv of their report to the Queen, the average decrement in the rate of increase of the population which has obtained from the period when it

	Percentage Rate of Increase.	Increment per Cent.	Decrease in Increment per Cent.
* Rate of increase, 1841-51.....	5'88	23'98 } 15'77 } 10'37 }	— 34'237 — 34'237
„ '51-61.....	7'29		
„ '61-71.....	8'44		
„ '71-81.....	†9'315		

† Rural population 1871, 10,137,987 × 1'09315 = 11,082,339.



attained its maximum, 1811-21, down to the time of the last census of 1871, was employed as a means of determining the rates of increase in future decades.

In order more accurately to ascertain the rates of increase of the population during each decade of the present century, the Royal Commissioners included the army, navy, and the seamen belonging to the merchant service, which were omitted in the census returns prior to 1841, the military at home in that year being for the first time included, while persons on board vessels in the navy or merchant service, and lying in harbours, creeks, and rivers, were for the first time included with the military in the later census returns of 1851, 1861 and 1871.\*

The population, however, of Great Britain for 1871, given in the before-mentioned tables in the Coal Commissioners' report, and which was furnished to them just prior to the publication of the preliminary census report of 1871, proves to have been somewhat short of the actual numbers † given in the complete census returns of 1871; in addition to this, the army, navy, and seamen employed in the merchant service have not, as in the case of the previous decades, been included in these tables for the decade of 1871; the effect of this both upon the rate of increase of the population during that particular decade, and also upon the average decrement in the rate of the increase of the population during the period of fifty years, being very appreciable (see Tables H and I).

An amended estimate of the future increase of the population of Great Britain, based on these corrected figures, is given in Table L in the Appendix, p. 493, and graphically shown on diagram, Plate 8.

Estimates of the future increase of the populations of England and Wales, and of Scotland, are given separately in Tables M and N in the Appendix, pp. 494 and 495, the average decrement in the rates of increase of the population of each kingdom during the last fifty years being employed in each case in determining the rates of increase in the future decades.

The combined results obtained by thus separately estimating the future increase of the respective populations of the two kingdoms during a long period of years, are somewhat in excess of that obtained in the case of the aggregate population of the two kingdoms; in the latter case the initial rate of increase is considerably less, and the rate of decrement more rapid.

The effect of this combination of the populations of the two kingdoms at once reduces the initial rate of increase of the total

\* See foot note p. x, Summary Table Census 1871, vol. i.

† Population, Great Britain .....	26,072,284
"    Coal Commissioners' report ....	26,062,721

Difference .....	9,563
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population in 1871 from 12·990 per cent., in the case of England and Wales, to 12·533 per cent. when combined with that of Scotland, and at the same time it increases the decrement in the rate of increase from 4·595 per cent. to 4·740 per cent. per decade.

The conclusions which, in the opinion of the writer, are to be drawn from these facts are, that the larger the area of population dealt with, the more accurate and reliable will be any estimates which are made to determine the future increase of that population.

The decrement in the rate of increase of the population of London which has only obtained during the two last decades scarcely affords, in the opinion of the writer, sufficient data for estimating its future increase for any lengthened period, and that given in Table O in the Appendix, and diagram Plate 9, has been made rather with the object of showing the unreliableness of any such enormous estimates as those which have recently appeared in connection with the question of the water supply of the metropolis, where the population in the course of the next century is estimated at over 17 millions.

*Table showing the Population of England and Wales, Scotland and Great Britain Islands in the*

[Extracted from the Census Returns for

Decade.	England and Wales.			Scotland.		
	Population.	Rate of Increase per Decade.	Decrement in Rate of Increase.	Population.	Rate of Increase per Decade.	Decrement in Rate of Increase.
	No.	Per cent.	Per cent.	No.	Per cent.	Per cent.
1801.....	9,156,171	14·180 * 16·434 15·438 14·113 12·591 12·043 * 12·990	— 6·060 — 8·582  — 2·725 — 2·725 — 2·725	1,678,452	12·248	— 6·627 — 18·291  — 0·741  — 3·148 — 3·148
11.....	10,454,529			1,884,044	* 13·444	
'21.....	12,172,664			2,137,325	12·553	
'31.....	14,051,986			2,405,610	10·257	
'41.....	16,035,198			2,652,339	10·181	
'51.....	18,054,170	Average rate between 1841 and 1871.	2,922,362	5·969	Average rate between 1841 and 1871.	
'61.....	20,228,497		3,096,808	* 9·550		
'71.....	22,856,164		3,392,559			
			5) — 22·817	5) — 31·955		
Average diminution of rate per decade .....			— 4·563	Average diminution of rate per decade .....		
* Initial and terminal periods.....			— 4·595	* Initial and terminal periods .....		

† This population was subsequently given in the completed census, published in 1873, as

*Future Increase of the Population of London.*

The population of London, and its remarkable growth during the present century, affords in itself the subject of a paper, and as a small contribution towards this the writer has prepared certain tables and diagrams, viz.:—

1st. Sectional Diagrams showing the population and rates of increase or decrease of population in each district, sub-district, or parish within the registrar-general's district from 1801 to 1871.†

2nd. Diagram map, showing the rates of increase or decrease of population in each district, sub-district, or parish within the registrar-general's district from 1801 to 1871.†

3rd. Diagram map, showing the number of persons per acre in each district, sub-district, or parish within the registrar-general's district, from 1801 to 1871.†

4th. Diagram map, showing the number of persons per acre in population in each district, sub-district, or parish within the registrar-general's district from 1801 to 1871.†

5th. Estimate of the prospective increase of the population of London. (Table O in the Appendix.)

*(including the Army, Navy, Marines, and Merchant Seamen, but excluding the British Seas.)*

1871, general table, vol iv, Table 4, p. 5.]

Great Britain.			Great Britain. Coal Com- missioners' Report.	(Table No. II, p. xv, Report 1871).		Decade.
Population.	Rate of Increase per Decade.	Decrement in Rate of Increase.	Population.	Rate of Increase per Decade.	Decrement in Rate of Increase.	
No.	Per cent.	Per cent.	No.	Per cent.	Per cent.	
10,834,623	13·881		12,338,573	15·977	— 6·065	1801
12,338,573						'11
* 15·977	15·008	— 6·065	14,309,989	15·008	— 9·721	'21
14,309,989						'31
16,457,596	13·549	— 9·721	16,457,596	13·549	— 9·595	'41
18,687,537						'51
12·249	11·197	— 2·562	18,687,537	12·249	— 8·588	'61
20,976,532						'71
11·197	* 12·533	— 2·562	20,976,532	11·197	+ 4·814	
23,325,305						
26,248,723		— 2·562	23,325,305	11·736		
		5) — 23·472	26,062,721†		— 33·969 + 4·814	
Average diminution of rate per decade .....	— 4·694				5) — 29·155	
* Initial and terminal periods .....						
	— 4·740		Average diminution of rate per decade.....	— 5·831		

26,072,284; the army and navy, &c., 176,439, being omitted;—total, 26,248,723.

† Not given with this paper.

APPENDIX.\* TABLE B.—*England and Wales. Aggregate Population, and Increase or*

County.	1801.	1811.	Increase.	1821.	Increase.	1831.	Increase.
	No.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Bedford .....	3,095	3,716	20'07	4,529	21'88	5,693	25'70
Berks .....	9,742	10,788	10'74	12,867	19'27	15,595	21'20
Buckingham .....	16,993	18,435	8'49	21,717	17'80	24,162	11'26
Cambridge .....	10,087	11,108	10'12	14,142	27'31	20,917	47'91
Chester .....	39,414	46,779	18'69	60,734	29'83	74,137	22'07
Cornwall .....	Nil	Nil	—	Nil	—	Nil	—
Cumberland .....	9,415	11,476	21'89	14,416	25'62	18,865	30'86
Derby .....	10,832	13,043	20'41	17,423	33'58	23,627	35'61
Devon .....	61,444	76,306	24'19	86,616	13'51	107,358	23'95
Dorset .....	Nil	Nil	—	Nil	—	Nil	—
Durham .....	53,212	59,014	10'90	70,867	20'09	90,927	28'31
Essex .....	15,430	17,449	13'08	19,898	14'04	23,158	16'38
Gloucester .....	91,961	108,206	17'67	134,844	24'61	167,282	24'06
Hereford .....	Nil	Nil	—	Nil	—	Nil	—
Hertford .....	"	"	—	"	—	"	—
Huntingdon .....	"	"	—	"	—	"	—
Kent .....	96,024	123,257	28'36	141,722	14'98	162,296	14'52
Lancaster .....	304,855	385,271	26'37	515,780	33'08	721,805	39'95
Leicester .....	17,005	23,453	37'92	31,036	32'33	40,639	30'94
Lincoln .....	10,340	13,141	27'09	15,178	15'54	17,806	17'31
Middlesex .....	751,753	874,995	16'39	1,052,319	20'27	1,252,967	19'07
Monmouth .....	1,423	3,025	112'58	4,951	63'67	7,062	42'64
Norfolk .....	53,427	56,704	6'13	71,295	25'73	85,651	20'14
Northampton .....	7,020	8,427	20'04	10,793	28'07	15,351	42'24
Northumberland .....	51,078	55,409	8'48	70,820	27'81	83,396	17'76
Nottingham .....	28,801	34,030	18'15	40,190	18'10	50,220	24'96
Oxford .....	11,694	12,931	10'58	16,364	26'55	20,649	26'19
Rutland .....	Nil	Nil	—	Nil	—	Nil	—
Salop .....	31,043	33,630	8'34	37,119	10'37	38,732	4'34
Somerset .....	33,196	38,408	15'70	46,700	21'59	50,800	8'78
Southampton .....	41,139	51,204	24'47	60,096	17'37	69,713	16'00
Stafford .....	72,759	96,653	32'84	118,218	22'31	150,888	27'64
Suffolk .....	11,277	13,670	21'22	17,186	25'72	20,201	17'54
Surrey .....	161,642	202,941	25'55	259,714	27'97	327,820	26'33
Sussex .....	26,526	34,743	30'98	53,574	54'20	77,447	44'56
Warwick .....	87,019	101,219	16'32	125,353	23'84	177,493	41'60
Westmoreland .....	Nil	Nil	—	Nil	—	Nil	—
Wilts .....	22,139	23,777	7'40	27,028	13'67	29,118	7'73
Worcester .....	28,370	36,492	28'63	46,678	27'91	58,076	24'42
York, E., N., and W.R.	211,884	248,974	17'51	322,486	29'53	437,064	35'53
Total .....	2,382,039	2,848,674	19'59	3,542,653	24'36	4,466,915	26'09
WALES.							
Anglesey .....	Nil	Nil	—	Nil	—	Nil	—
Brecon .....	"	"	—	"	—	"	—
Cardigan .....	"	"	—	"	—	"	—
Carmarthen .....	"	"	—	"	—	"	—
Carnarvon .....	"	"	—	"	—	"	—
Denbigh .....	"	"	—	"	—	"	—
Flint .....	"	"	—	"	—	"	—
Glamorgan .....	22,114	29,365	32'79	39,376	34'09	53,140	34'96
Merioneth .....	Nil	Nil	—	Nil	—	Nil	—
Montgomery .....	"	"	—	"	—	"	—
Pembroke .....	"	"	—	"	—	"	—
Radnor .....	"	"	—	"	—	"	—
Total .....	22,114	29,365	32'79	39,376	34'09	53,140	34'96
Total England & Wales	2,404,153	2,878,039	19'71	3,582,029	24'46	4,520,055	26'19

\* Tables A<sup>1</sup> to A<sup>52</sup>, containing particulars of the population, rates of increase, &c., of the town and



*Decrease per Cent. of the Large Towns of over 20,000 Inhabitants between 1801 and 1871.*

1841.	Increase	1851.	Increase.	1861.*	Increase.	1871.	Increase.	County.
No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	
7,748	36'10	12,787	65'04	17,821	39'37	20,733	16'34	Bedford
18,937	21'43	21,456	13'30	25,045	16'73	32,313	29'02	Berks
25,337	4'86	26,794	5'75	27,090	1'10	28,760	6'16	Buckingham
24,453	16'90	27,815	13'75	26,361	-5'23	33,996	28'96	Cambridge
118,212	59'45	175,878	48'78	198,642	12'94	210,784	6'11	Chester
Nil	—	Nil	—	Nil	—	Nil	—	Cornwall
21,550	14'23	26,310	22'09	29,417	11'81	31,049	5'55	Cumberland
32,741	38'57	40,609	24'03	43,091	6'11	61,381	42'45	Derby
123,265	14'82	154,542	25'37	185,550	21'17	200,008	7'79	Devon
Nil	—	Nil	—	Nil	—	Nil	—	Dorset
117,290	28'99	143,225	22'12	183,769	28'30	253,271	37'82	Durham
25,480	10'13	30,029	17'85	39,803	32'55	49,629	24'69	Essex
194,549	16'30	208,914	7'38	229,303	9'76	265,681	45'86	Gloucester
Nil	—	Nil	—	Nil	—	Nil	—	Hereford
"	—	"	—	"	—	"	—	Hertford
"	—	"	—	"	—	"	—	Huntingdon
208,228	28'30	253,864	21'91	339,460	33'72	392,377	15'59	Kent
966,797	33'94	1,239,702	28'23	1,475,422	19'01	1,713,250	16'12	Lancaster
50,806	25'02	60,584	19'25	68,056	12'33	95,220	39'91	Leicester
20,594	15'66	29,796	44'68	36,059	21'02	53,748	49'06	Lincoln
1,453,406	15'99	1,755,429	20'78	2,044,772	16'49	2,306,800	12'81	Middlesex
10,815	53'15	19,323	78'68	23,249	20'32	27,069	16'43	Monmouth
90,209	5'32	99,592	10'40	109,701	10'15	122,205	11'40	Norfolk
21,242	38'38	26,657	25'49	32,813	23'10	45,080	37'39	Northampton
102,913	23'40	126,966	23'08	156,923	23'88	197,623	25'94	Northumberland
52,164	3'87	57,407	10'05	74,693	30'11	86,621	15'97	Nottingham
24,258	17'48	27,843	14'78	27,560	-1'02	31,404	13'95	Oxford
Nil	—	Nil	—	Nil	—	Nil	—	Rutland
39,534	2'07	43,692	10'52	47,374	8'43	44,614	-5'83	Salop
53,196	4'72	54,240	1'96	52,528	-3'16	53,714	2'26	Somerset
80,776	15'87	107,401	32'96	141,759	31'99	167,310	18'02	Southampton
203,389	34'79	269,105	32'31	340,558	26'55	392,575	15'27	Stafford
25,384	25'66	32,914	29'66	37,950	15'30	42,947	13'17	Suffolk
399,247	21'79	482,435	20'84	579,748	20'17	742,155	28'01	Surrey
89,425	15'46	117,237	31'10	142,849	21'85	175,079	22'56	Sussex
226,818	27'79	285,377	25'82	355,125	24'44	406,045	14'34	Warwick
Nil	—	Nil	—	Nil	—	Nil	—	Westmoreland
35,409	21'61	35,503	0'27	36,893	3'91	43,622	18'24	Wilts
73,663	26'84	83,952	13'97	91,601	9'11	141,179	54'12	Worcester
556,628	27'36	694,731	24'81	838,789	20'74	1,144,359	36'43	York, E., N., and W. R.
5,494,463	23'00	6,772,109	23'25	8,059,774	19'01	9,612,601	19'27	Total
WALES.								
Nil	—	Nil	—	Nil	—	Nil	—	Anglesey
"	—	"	—	"	—	"	—	Brecon
"	—	"	—	"	—	"	—	Cardigan
"	—	"	—	"	—	"	—	Carmarthen
"	—	"	—	"	—	"	—	Carnarvon
"	—	"	—	"	—	"	—	Denbigh
"	—	"	—	"	—	"	—	Flint
77,712	46'24	112,892	45'27	158,435	40'35	188,286	18'84	Glamorgan
Nil	—	Nil	—	Nil	—	Nil	—	Merioneth
"	—	"	—	"	—	"	—	Montgomery
"	—	"	—	"	—	"	—	Pembroke
"	—	"	—	"	—	"	—	Radnor
77,712	46'24	112,892	45'27	158,435	40'35	188,286	18'84	Total
5,572,175	23'28	6,885,001	23'56	8,218,209	19'36	9,800,887	19'25	Total England & Wales

rural, and total population of each county in England and Wales from 1801 to 1871, are not printed.

TABLE C.—England and Wales. Aggregate Population, and Increase or Decrease per

County.	1801.	1811.	Increase.	1821.	Increase.	1831.	Increase.
	No.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Bedford .....	10,235	11,529	12'64	14,351	24'48	17,320	20'69
Berks .....	28,895	31,520	9'09	35,092	11'33	39,299	11'99
Buckingham .....	22,021	25,472	15'67	28,260	10'95	31,214	10'45
Cambridge .....	13,786	15,540	12'72	19,079	22'72	22,714	19'05
Chester .....	17,775	21,688	22'01	28,419	31'04	39,668	39'58
Cornwall .....	46,407	53,025	14'26	65,634	23'78	80,049	21'96
Cumberland .....	35,010	40,148	14'68	48,662	21'21	51,333	5'49
Derby .....	23,220	28,053	20'81	35,038	24'90	41,692	18'99
Devon .....	59,993	65,702	9'52	78,352	19'25	89,068	13'68
Dorset .....	35,539	39,470	11'06	47,333	19'92	53,548	13'13
Durham .....	14,694	15,400	4'80	19,639	27'53	21,860	11'31
Essex .....	28,339	31,561	11'37	36,456	15'51	41,898	14'93
Gloucester .....	23,974	26,672	11'26	30,340	13'75	35,202	16'02
Hereford .....	15,618	16,433	5'22	19,710	19'94	23,277	18'10
Hertford .....	21,676	25,165	16'10	30,394	20'78	34,476	13'43
Huntingdon .....	10,926	12,759	16'78	14,575	14'23	16,514	13'30
Kent .....	50,345	64,566	28'25	70,439	9'10	81,985	16'39
Lancaster .....	70,352	83,988	19'40	105,365	25'44	125,849	19'44
Leicester .....	19,383	22,601	16'60	26,487	17'20	32,763	23'69
Lincoln .....	42,242	50,053	18'49	61,380	22'63	70,522	14'89
Middlesex .....	3,861	4,453	15'33	4,707	5'70	5,529	17'46
Monmouth .....	8,374	9,408	12'35	11,148	18'50	13,127	17'75
Norfolk .....	30,282	31,813	5'06	37,997	19'44	43,832	15'36
Northampton .....	18,586	20,193	8'65	23,596	16'85	26,172	10'92
Northumberland .....	14,673	16,306	11'13	18,389	12'77	19,685	7'05
Nottingham .....	18,295	20,439	11'72	23,576	15'35	27,943	18'52
Oxford .....	20,417	22,188	8'68	25,373	14'35	27,421	8'07
Rutland .....	3,055	3,203	4'85	3,790	18'33	4,147	9'42
Salop .....	45,291	48,512	7'11	52,333	7'88	58,991	12'72
Somerset .....	35,637	38,134	7'01	45,103	18'27	51,678	14'58
Southampton .....	39,785	43,149	8'46	51,045	18'30	57,643	12'93
Stafford .....	40,539	45,505	12'25	53,644	17'89	59,148	10'26
Suffolk .....	21,886	23,449	7'14	27,732	18'27	31,213	12'55
Surrey .....	26,497	29,599	11'71	34,320	15'95	39,825	16'04
Sussex .....	29,040	37,559	29'34	44,365	18'12	50,157	13'06
Warwick .....	21,093	23,144	9'72	28,789	24'39	33,441	16'16
Westmoreland .....	8,015	8,793	9'71	10,438	18'71	11,577	10'91
Wilts .....	64,426	66,704	3'54	79,740	19'54	86,629	8'64
Worcester .....	12,697	13,494	6'28	15,099	11'89	17,076	13'09
York, E., N., & W. R..	86,722	98,487	13'57	117,072	18'90	129,947	11'00
Total .....	1,139,601	1,285,877	12'84	1,523,261	18'46	1,745,432	14'58
WALES.							
Anglesey .....	6,283	7,047	12'16	9,364	32'88	10,552	12'69
Brecon .....	1,583	2,247	41'95	2,906	29'33	3,343	15'04
Cardigan .....	5,989	6,695	11'79	8,758	30'81	10,162	16'03
Carmarthen .....	8,112	10,487	29'28	12,997	23'93	16,135	24'15
Carnarvon .....	8,620	10,618	23'18	13,666	28'71	16,919	23'80
Denbigh .....	9,755	10,672	9'40	12,071	13'11	13,695	13'45
Flint .....	6,384	7,393	15'81	9,300	25'79	11,008	18'37
Glamorgan .....	5,477	6,059	10'63	6,698	10'55	9,082	35'59
Merioneth .....	Nil	Nil	—	Nil	—	Nil	—
Montgomery .....	9,355	11,756	25'67	15,596	32'66	19,543	25'31
Pembroke .....	8,094	9,069	12'05	13,331	46'99	15,883	19'14
Kadnor .....	1,839	1,837	—0'10	2,098	14'21	2,358	12'39
Total .....	71,491	83,880	17'33	106,785	27'31	128,680	20'50
Total England & Wales	1,211,092	1,369,757	13'10	1,630,046	19'00	1,874,112	14'98

*Cent. of the Small Towns of 2,000 and under 20,000 Inhabitants between 1801 and 1871.*

1841.	Increase	1851.	Increase	1861.	Increase.	1871.	Increase	County.
No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	
21,532	24'32	26,168	21'53	29,540	12'89	34,339	16'25	Bedford
43,985	11'93	45,065	2'46	46,659	3'54	52,959	13'50	Berks
32,979	5'66	34,054	3'26	33,620	-1'27	35,286	4'95	Buckingham
25,747	13'35	29,960	16'36	26,882	-10'27	27,356	1'76	Cambridge
48,595	22'50	54,932	13'04	64,098	16'69	67,963	6'03	Chester
98,180	22'65	108,510	10'52	115,354	6'31	118,537	2'76	Cornwall
53,720	4'61	60,232	12'12	62,708	4'11	65,175	3'93	Cumberland
53,079	27'31	63,048	18'78	77,448	22'84	79,090	2'12	Derby
96,235	8'05	102,290	6'29	101,762	-0'52	106,930	5'08	Devon
58,362	8'99	63,003	7'95	64,406	2'23	66,920	3'90	Dorset
29,073	33'00	39,066	34'37	45,843	17'35	51,443	12'21	Durham
46,928	12'01	54,105	15'29	57,535	6'34	64,449	12'02	Essex
37,442	6'36	39,847	6'42	38,148	-4'26	40,925	7'28	Gloucester
24,577	5'58	25,963	5'64	31,187	20'12	33,272	6'69	Hereford
40,794	18'33	46,259	13'40	49,282	6'53	53,706	8'98	Hertford
17,969	8'81	19,930	10'91	19,908	-0'11	20,151	1'22	Huntingdon
90,816	10'26	104,815	15'41	117,966	12'55	146,302	24'02	Kent
149,848	19'07	171,360	14'35	206,954	20'77	248,163	19'91	Lancaster
33,760	3'04	35,207	4'29	34,993	-0'61	37,605	7'46	Leicester
82,630	17'17	93,036	12'59	92,038	-1'07	98,192	6'69	Lincoln
5,706	3'20	5,813	1'88	5,985	2'96	7,023	17'34	Middlesex
14,141	7'72	15,548	9'95	15,324	-1'44	15,544	1'44	Monmouth
48,849	11'44	55,280	13'16	51,539	-6'17	52,875	2'59	Norfolk
29,546	12'89	31,647	7'11	36,491	15'31	46,093	26'31	Northampton
19,204	-2'44	22,413	16'71	20,615	-8'02	20,328	-1'39	Northumberland
29,690	6'25	32,688	10'10	33,570	2'70	37,633	12'10	Nottingham
32,105	17'08	32,484	1'18	33,801	4'05	35,803	5'92	Oxford
4,760	14'78	5,099	7'12	5,145	0'90	5,690	10'59	Rutland
64,086	8'64	65,027	1'47	69,919	7'52	73,780	5'52	Salop
58,207	12'63	60,294	3'59	60,941	1'07	63,310	3'89	Somerset
68,083	18'11	78,764	15'69	85,620	8'71	101,435	18'47	Southampton
68,265	15'41	77,547	13'60	87,080	12'29	94,747	8'81	Stafford
33,517	7'38	36,196	7'99	35,251	-2'61	37,804	7'24	Suffolk
46,332	16'34	52,833	14'03	68,786	30'19	91,356	32'81	Surrey
54,979	9'62	57,730	5'00	59,606	3'25	71,221	19'49	Sussex
35,044	4'79	41,754	19'15	42,939	2'84	43,363	0'99	Warwick
11,519	-0'50	11,829	2'69	12,029	1'69	13,446	11'78	Westmoreland
91,567	5'70	89,923	-1'80	87,947	-2'20	90,987	3'46	Wilts
18,291	7'11	19,019	3'98	18,850	-0'89	22,012	16'78	Worcester
142,049	9'31	156,073	9'87	174,436	11'77	196,980	12'92	York, E., N., & W. R.
1,962,191	12'42	2,164,811	10'32	2,322,205	7'27	2,570,193	10'68	Total
WALES.								
10,396	-1'48	12,752	22'66	13,275	4'10	13,672	2'99	Anglesey
5,317	59'05	6,070	14'16	5,639	-7'10	6,291	11'56	Brecon
11,296	11'16	11,760	4'11	11,646	-0'97	14,485	24'38	Cardigan
18,053	11'89	21,161	17'22	23,294	10'08	27,630	18'62	Carmarthen
19,003	12'32	22,210	16'88	22,907	3'14	27,540	20'23	Carnarvon
15,450	12'82	16,614	7'54	17,888	7'67	20,223	13'05	Denbigh
14,588	32'52	14,509	-0'54	14,561	0'36	18,958	30'20	Flint
11,140	22'66	15,302	37'36	18,027	17'81	26,359	46'22	Glamorgan
Nil	—	Nil	—	Nil	—	—	—	Merioneth
19,700	0'80	18,901	-4'06	19,268	1'94	19,480	1'10	Montgomery
17,950	13'01	22,508	25'39	28,079	24'75	28,718	2'28	Pembroke
2,478	5'09	2,345	-5'37	2,262	-3'54	2,190	-3'18	Radnor
145,371	12'97	164,130	12'90	176,846	7'75	205,546	16'23	Total
2,107,562	12'46	2,328,941	10'50	2,499,051	7'31	2,775,739	11'07	Total England & Wales



TABLE D.—*England and Wales. Aggregate Population, and Increase or Decrease*

County.	1801.	1811.	Increase.	1821.	Increase.	1831.	Increase.
	No.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Bedford .....	13,330	15,245	14'37	18,880	23'84	23,013	21'89
Berks .....	38,637	42,808	9'50	47,959	13'36	54,894	14'46
Buckingham .....	39,014	43,907	12'55	49,977	13'83	55,376	10'80
Cambridge .....	23,873	26,648	11'62	33,221	24'67	43,631	31'33
Chester .....	57,189	68,467	19'72	89,153	30'21	113,805	27'65
Cornwall .....	46,407	53,025	14'26	65,634	23'78	80,049	21'96
Cumberland .....	44,425	51,624	16'20	63,078	22'19	70,218	11'32
Derby .....	34,052	41,096	20'67	52,461	27'67	65,319	24'51
Devon .....	121,437	142,008	16'94	164,968	15'82	196,426	19'44
Dorset .....	35,539	39,470	11'06	47,333	19'92	53,548	13'13
Durham .....	67,906	74,414	9'58	90,506	21'62	112,787	24'62
Essex .....	43,769	49,010	11'97	56,354	14'90	65,056	15'44
Gloucester .....	115,935	134,878	16'33	165,184	22'46	202,484	22'58
Hereford .....	15,618	16,433	5'22	19,710	19'94	23,277	18'10
Hertford .....	21,676	25,165	16'10	30,394	20'78	34,476	13'43
Huntingdon .....	10,926	12,759	16'78	14,575	14'23	16,514	13'30
Kent .....	146,369	187,823	28'32	212,161	12'96	244,281	15'14
Lancaster .....	375,207	469,259	25'07	621,145	32'37	847,654	36'46
Leicester .....	36,388	46,054	26'56	57,523	24'90	73,402	27'61
Lincoln .....	52,582	63,194	20'18	76,558	21'15	88,328	15'37
Middlesex .....	755,614	879,448	16'39	1,057,026	20'19	1,258,496	19'06
Monmouth .....	9,797	12,433	26'91	16,099	29'49	20,189	25'41
Norfolk .....	83,709	88,517	5'74	109,292	23'47	129,483	18'47
Northampton .....	25,606	28,620	11'77	34,389	20'16	41,523	20'75
Northumberland .....	65,751	71,715	9'07	89,209	24'39	103,081	15'55
Nottingham .....	47,096	54,469	15'66	63,766	17'07	78,163	22'58
Oxford .....	32,111	35,119	9'37	41,737	18'84	48,070	15'17
Rutland .....	3,055	3,203	4'85	3,790	18'33	4,147	9'42
Salop .....	76,334	82,142	7'61	89,452	8'90	97,723	9'25
Somerset .....	68,833	76,542	11'20	91,803	19'94	102,478	11'63
Southampton .....	80,924	94,353	16'60	111,141	17'79	127,356	14'59
Stafford .....	113,298	142,158	25'48	171,862	20'89	210,036	22'22
Suffolk .....	33,163	37,119	11'93	44,918	21'01	51,414	14'46
Surrey .....	188,139	232,540	23'60	294,034	26'44	367,645	25'04
Sussex .....	55,566	72,302	30'12	97,939	35'46	127,604	30'29
Warwick .....	108,112	124,363	15'03	154,142	23'95	210,934	36'84
Westmoreland .....	8,015	8,793	9'71	10,438	18'71	11,577	10'91
Wilts .....	86,565	90,481	4'53	106,768	18'00	115,747	8'41
Worcester .....	41,067	49,986	21'72	61,777	23'59	75,152	21'65
York, E. N., and W. R.	298,606	347,461	16'36	439,558	26'51	567,011	28'99
Total .....	3,521,640	4,134,551	17'41	5,065,914	22'52	6,212,347	22'63
WALES.							
Anglesey .....	6,283	7,047	12'16	9,364	32'88	10,552	12'69
Brecon .....	1,583	2,247	41'95	2,906	29'33	3,343	15'04
Cardigan .....	5,989	6,695	11'79	8,758	30'81	10,162	16'03
Carmarthen .....	8,112	10,487	29'28	12,997	23'93	16,135	24'15
Carnarvon .....	8,620	10,618	23'18	13,666	28'71	16,919	23'80
Denbigh .....	9,755	10,672	9'40	12,071	13'11	13,695	13'45
Flint .....	6,384	7,393	15'81	9,300	25'79	11,008	18'37
Glamorgan .....	27,591	35,424	28'39	46,074	30'06	62,222	35'05
Merioneth .....	Nil	Nil	—	Nil	—	Nil	—
Montgomery .....	9,355	11,756	25'67	15,696	32'66	19,543	25'31
Pembroke .....	8,094	9,069	12'05	13,331	46'99	15,883	19'14
Radnor .....	1,839	1,837	—0'10	2,098	14'21	2,358	12'39
Total .....	93,605	113,245	20'98	146,161	29'07	181,820	24'40
Total England & Wales	3,615,245	4,247,796	17'50	5,212,075	22'70	6,394,167	22'68



per Cent. of the Large and Small Towns combined, between 1801 and 1871.

1841.	Increase	1851.	Increase	1861.	Increase	1871.	Increase	County.
No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	
29,280	27'23	38,955	33'04	47,361	21'58	55,072	16'28	Bedford
62,922	14'62	66,521	5'72	71,704	7'79	85,272	18'92	Berks
58,316	5'31	60,848	4'34	60,710	-0'23	64,046	5'49	Buckingham
50,200	15'06	57,775	15'09	53,243	-7'84	61,352	15'23	Cambridge
166,807	46'58	230,810	38'37	262,740	13'83	278,747	6'09	Chester
98,180	22'65	108,510	10'52	115,354	6'31	118,537	2'76	Cornwall
75,270	7'19	86,542	14'98	92,125	6'45	96,224	4'45	Cumberland
85,820	31'39	103,657	20'78	120,539	16'29	140,471	16'53	Derby
219,500	11'74	256,832	16'10	287,312	12'75	306,938	6'83	Devon
58,362	8'99	63,003	7'95	64,406	2'23	66,920	3'90	Dorset
146,363	29'77	182,291	24'55	229,612	25'96	304,714	32'71	Durham
72,408	11'30	84,134	16'19	97,338	13'07	114,078	44'92	Essex
231,991	14'58	248,761	7'23	267,451	7'51	306,606	14'64	Gloucester
24,577	5'58	25,963	5'64	31,187	20'12	33,272	6'69	Hereford
40,794	18'33	46,259	13'40	49,282	6'53	53,706	8'98	Hertford
17,969	8'81	19,930	10'91	19,908	-0'11	20,151	1'22	Huntingdon
299,044	22'42	358,679	19'94	457,426	27'53	538,679	17'76	Kent
1,116,645	31'73	1,411,062	26'37	1,682,376	19'23	1,961,413	16'58	Lancaster
84,566	15'21	95,791	13'27	103,049	7'58	132,825	28'90	Leicester
103,224	16'86	122,832	18'99	128,097	4'29	151,940	18'61	Lincoln
1,459,112	15'94	1,761,242	20'70	2,050,757	16'44	2,313,823	12'82	Middlesex
24,956	23'61	34,871	39'73	38,573	10'62	42,613	10'47	Monmouth
139,058	7'40	154,872	11'37	161,240	4'11	175,080	8'58	Norfolk
50,788	22'31	58,304	14'80	69,304	18'87	91,173	31'56	Northampton
122,117	18'47	149,379	22'32	177,538	18'85	217,951	22'76	Northumberland
81,854	4'72	90,095	10'07	108,263	20'17	124,254	14'77	Nottingham
56,863	17'25	60,327	7'03	61,361	1'71	67,207	9'53	Oxford
4,760	14'78	5,099	7'12	5,145	0'90	5,690	10'59	Rutland
103,620	6'03	108,719	4'92	117,293	7'89	118,394	0'94	Salop
111,403	8'71	114,534	2'81	113,469	-0'93	117,024	3'13	Somerset
148,859	16'88	186,165	25'06	227,379	22'14	268,745	18'20	Southampton
271,654	29'33	346,652	27'61	427,638	23'36	487,322	13'96	Stafford
58,901	14'56	69,110	17'33	73,201	5'92	80,751	10'31	Suffolk
445,579	21'20	535,268	20'13	648,534	21'16	833,511	28'52	Surrey
144,404	13'17	174,967	21'17	202,455	15'71	246,300	21'66	Sussex
261,862	24'15	327,131	24'93	398,064	21'68	449,408	12'90	Warwick
11,519	-0'50	11,829	2'69	12,029	1'69	13,446	11'78	Westmoreland
126,976	9'71	125,426	-1'22	124,840	-0'47	134,609	7'83	Wilts
91,954	22'36	102,971	11'98	110,451	7'26	163,191	47'75	Worcester
698,677	23'22	850,804	21'77	1,013,225	19'09	1,341,339	32'38	York, E., N., & W. R.
7,456,654	20'03	8,936,920	19'85	10,381,979	16'17	12,182,794	17'35	Total
WALES.								
10,396	-1'48	12,752	22'66	13,275	4'10	13,672	2'99	Anglesey
5,317	59'05	6,070	14'16	5,639	-7'10	6,291	11'56	Brecon
11,296	11'16	11,760	4'11	11,646	-0'97	14,485	24'38	Cardigan
18,053	11'89	21,161	17'22	23,294	10'08	27,630	18'62	Carmarthen
19,003	12'32	22,210	16'88	22,907	3'14	27,540	20'23	Carmarvon
15,450	12'82	16,614	7'54	17,888	7'67	20,223	13'05	Denbigh
14,588	32'52	14,509	-0'54	14,561	0'36	18,958	30'20	Flint
88,852	42'80	128,194	44'27	176,462	37'65	214,645	21'64	Glamorgan
Nil	—	Nil	—	Nil	—	Nil	—	Merioneth
19,700	0'80	18,901	-4'06	19,268	1'94	19,480	1'10	Montgomery
17,950	13'01	22,508	25'39	28,079	24'75	28,718	2'28	Pembroke
2,478	5'09	2,345	-5'37	2,262	-3'54	2,190	-3'18	Radnor
223,083	22'69	277,022	24'18	335,281	21'03	393,832	17'46	Total
7,679,737	20'10	9,213,942	19'98	10,717,260	16'32	12,576,626	17'35	Total England & Wales

TABLE E.—*England and Wales. Aggregate Population and Increase.*

County.	1801.	1811.	Increase.	1821.	Increase.	1831.	Increase.
	No.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Bedford .....	50,063	54,968	9'80	65,172	14'57	72,470	11'20
Berks .....	71,843	77,122	7'35	84,680	9'80	91,340	7'86
Buckingham .....	69,118	74,158	7'29	85,156	14'83	91,601	7'57
Cambridge .....	65,473	74,461	13'73	89,166	19'75	100,324	12'51
Chester .....	135,116	158,564	17'35	180,945	14'12	220,586	21'91
Cornwall .....	145,874	167,500	14'83	195,411	16'66	221,257	13'23
Cumberland .....	72,805	82,041	12'69	93,046	13'41	99,044	6'45
Derby .....	127,515	144,391	13'24	161,190	11'63	171,851	6'61
Devon .....	218,871	240,770	10'01	273,949	13'78	297,482	8'59
Dorset .....	78,913	85,248	8'03	97,597	14'49	105,837	8'44
Durham .....	81,478	90,879	11'54	103,005	13'34	126,468	22'78
Essex .....	183,913	203,463	10'63	233,070	14'55	252,451	8'32
Gloucester .....	134,788	151,077	12'09	171,006	13'19	184,914	8'13
Hereford .....	72,818	77,093	5'87	82,959	7'61	87,340	5'28
Hertford .....	75,717	86,060	13'53	99,337	15'56	108,368	9'09
Huntingdon .....	26,642	29,449	10'54	34,371	16'71	36,678	6'71
Kent .....	162,298	183,878	13'30	215,063	16'96	235,277	9'40
Lancaster .....	298,279	359,240	20'44	431,803	20'20	489,200	13'29
Leicester .....	93,694	104,505	11'54	117,048	12'00	123,601	5'60
Lincoln .....	156,043	174,440	11'79	206,500	18'38	229,137	10'96
Middlesex .....	62,515	74,326	18'89	88,031	18'44	99,834	13'41
Monmouth .....	35,771	49,672	38'86	59,702	20'19	77,937	30'54
Norfolk .....	189,770	203,430	7'20	235,076	15'56	260,571	10'84
Northampton .....	105,919	112,733	6'43	128,708	14'17	137,813	7'07
Northumberland .....	102,327	111,554	9'02	123,380	10'60	133,878	8'51
Nottingham .....	93,254	108,495	16'34	123,107	13'47	147,164	19'54
Oxford .....	79,866	85,257	6'75	96,487	13'17	105,456	9'29
Rutland .....	13,245	13,177	—0'51	14,697	11'53	15,238	3'68
Salop .....	92,914	102,831	10'67	108,859	5'86	115,795	6'37
Somerset .....	204,744	226,294	10'52	263,986	16'66	301,317	14'14
Southampton .....	138,366	152,161	9'97	171,756	12'88	186,620	8'65
Stafford .....	129,395	152,382	17'76	174,110	14'26	199,444	14'55
Suffolk .....	181,241	196,844	8'61	226,623	15'13	244,903	8'07
Surrey .....	80,094	91,311	14'00	105,383	15'41	118,789	12'72
Sussex .....	103,905	118,041	13'61	135,389	14'70	145,400	7'13
Warwick .....	98,686	104,543	3'52	120,340	15'11	125,711	4'46
Westmoreland .....	32,990	37,129	13'23	40,921	10'21	43,464	6'21
Wilts .....	97,255	101,372	4'23	112,806	11'28	121,497	7'71
Worcester .....	105,374	118,996	12'93	132,297	11'18	147,503	11'49
York, E., N., & W. R.	560,527	638,615	13'93	734,337	14'99	804,955	9'62
Total .....	4,829,219	5,418,470	12'20	6,215,969	14'72	6,878,176	10'65
WALES.							
Anglesey .....	27,523	29,998	8'99	35,699	19'00	37,773	5'81
Brecon .....	30,742	35,488	15'44	40,920	15'31	44,420	8'55
Cardigan .....	36,967	43,565	17'85	49,026	12'54	54,618	11'41
Carmarthen .....	59,205	66,730	12'71	77,242	15'75	84,605	9'53
Carnarvon .....	32,901	39,037	18'65	44,433	13'82	49,899	12'30
Denbigh .....	50,544	53,577	6'00	64,357	20'12	68,970	7'17
Flint .....	33,085	38,544	16'50	44,593	15'69	49,236	10'41
Glamorgan .....	43,288	49,643	14'68	55,999	12'80	64,390	14'98
Merioneth .....	29,506	30,854	4'57	34,382	11'43	35,315	2'71
Montgomery .....	38,829	40,428	4'12	44,649	10'44	47,301	5'94
Pembroke .....	48,186	51,546	6'97	60,457	17'29	65,542	8'41
Radnor .....	17,296	18,580	7'42	20,435	9'98	22,385	9'54
Total .....	448,072	497,990	11'14	572,192	14'90	624,454	9'13
Total England & Wales	5,277,291	5,916,460	12'11	6,788,161	14'74	7,502,630	10'52

or Decrease per Cent. of the Rural Districts between 1801 and 1871.

1841.	Increase	1851.	Increase	1861.	Increase	1871.	Increase	County.
No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	
78,656	8'54	85,523	8'73	87,926	2'81	91,185	3'70	Bedford
98,837	8'21	103,544	4'76	104,552	0'97	111,203	6'36	Berks
98,123	7'12	102,875	4'84	107,283	4'28	111,833	4'24	Buckingham
114,259	13'89	127,630	11'70	122,773	-3'81	125,554	2'26	Cambridge
228,853	3'75	224,915	-1'72	242,688	7'90	282,454	16'38	Chester
243,979	10'27	247,048	1'26	254,036	2'83	243,806	-4'03	Cornwall
102,768	3'76	108,950	6'02	113,151	3'86	124,029	9'62	Cumberland
186,382	8'46	192,427	3'25	218,788	13'70	238,923	9'20	Derby
313,459	5'38	310,266	-1'02	297,061	-4'26	294,436	-0'88	Devon
116,692	10'26	121,204	3'86	124,383	2'62	128,617	3'41	Dorset
161,600	27'77	208,706	29'15	279,054	33'70	380,375	36'31	Durham
272,571	7'97	285,184	4'63	307,513	7'83	352,358	14'59	Essex
199,504	7'89	210,044	5'28	218,319	3'94	228,034	4'45	Gloucester
88,695	1'55	89,526	0'94	92,525	3'35	92,098	-0'47	Hereford
115,866	6'92	121,039	4'46	123,998	3'63	138,520	10'43	Hertford
40,580	10'64	44,253	9'05	44,342	0'20	43,557	-1'77	Huntingdon
250,309	6'39	257,087	2'71	276,461	7'54	309,615	11'99	Kent
550,409	12'51	620,174	12'67	747,064	20'46	858,082	14'86	Lancaster
131,301	6'23	134,517	2'45	134,363	-0'11	136,486	1'59	Leicester
259,378	13'20	284,390	9'64	284,149	-0'08	284,659	0'18	Lincoln
117,524	17'72	125,334	6'64	155,728	24'26	225,942	45'08	Middlesex
109,412	40'38	122,547	12'01	136,060	11'02	152,835	12'33	Monmouth
273,606	5'01	287,842	5'20	273,558	-4'96	263,576	-3'65	Norfolk
148,440	7'71	154,076	3'80	158,400	2'80	152,718	-3'59	Northampton
143,903	7'49	154,189	7'15	165,487	7'33	168,695	1'94	Northumberland
168,056	14'20	180,332	7'30	185,604	2'92	195,504	5'33	Nottingham
106,764	1'24	110,112	3'14	109,583	-0'48	110,768	1'08	Oxford
16,542	8'56	17,884	8'11	16,716	-6'53	16,383	-1'99	Rutland
122,200	5'53	120,622	-1'29	123,666	2'53	129,717	4'89	Salop
324,196	7'59	329,382	1'60	331,404	0'61	346,459	4'54	Somerset
205,823	10'29	219,205	6'51	254,436	16'07	275,939	8'45	Southampton
237,818	19'25	262,064	10'19	319,305	21'85	371,004	16'19	Stafford
256,172	4'60	268,105	4'66	263,869	-1'56	268,118	1'61	Suffolk
138,457	16'56	147,814	6'75	182,559	23'51	258,124	41'39	Surrey
155,671	7'33	161,877	3'99	161,280	-0'37	171,156	6'13	Sussex
139,841	11'24	147,882	5'75	163,791	10'76	184,781	12'82	Warwick
44,935	3'39	46,458	3'39	48,788	5'01	51,564	5'69	Westmoreland
129,304	6'42	128,795	-0'39	124,471	-3'36	122,568	-1'53	Wilts
156,506	6'11	173,955	11'15	196,946	13'22	175,646	-10'82	Worcester
893,382	10'98	947,191	6'02	1,020,385	7'73	1,095,016	7'31	York, E., N., & W. R.
7,540,773	9'63	7,984,968	5'89	8,572,465	7'36	9,312,337	8'63	Total
WALES.								
40,495	7'21	44,575	10'08	41,334	-7'27	37,368	-9'60	Anglesey
50,286	13'21	55,404	10'18	55,988	1'06	53,610	-4'24	Brecon
57,470	5'22	59,036	2'73	60,599	2'65	58,956	-2'71	Cardigan
88,273	4'34	89,471	1'36	88,502	-1'08	88,080	-0'48	Carmarthen
62,090	24'43	65,660	5'75	72,787	10'85	78,581	7'96	Carnarvon
73,028	5'88	75,969	4'03	82,890	9'11	84,879	2'40	Denbigh
52,331	6'29	53,647	2'52	55,176	2'85	57,354	3'95	Flint
82,336	27'87	103,655	25'89	141,290	36'31	183,214	29'67	Glamorgan
39,332	11'38	38,843	-1'24	38,963	0'31	46,598	19'59	Merioneth
49,097	5'51	48,434	-2'95	47,651	-1'62	48,143	1'03	Montgomery
70,094	6'94	71,634	2'20	68,199	-4'80	63,280	-7'21	Pembroke
22,980	2'66	22,371	-2'65	23,120	3'35	23,240	0'52	Radnor
688,622	10'28	728,699	5'82	776,499	6'56	823,303	6'03	Total
8,229,395	9'69	8,713,667	5'88	9,348,964	7'29	10,135,640	8'41	Total England & Wales



TABLE F.—England and Wales. Population, and Increase of

County.	1801.	1811.	Increase.	1821.	Increase.	1831.	Increase.
	No.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Bedford .....	63,393	70,213	10·76	84,052	19·71	95,483	13·60
Berks .....	110,480	119,430	8·10	132,639	11·06	146,234	10·25
Buckingham .....	108,132	118,065	9·19	135,133	14·45	146,977	8·76
Cambridge .....	89,346	101,109	13·16	122,387	21·05	143,955	17·61
Chester .....	192,305	227,031	18·05	270,098	18·97	334,391	23·80
Cornwall .....	192,281	220,525	14·69	261,045	18·38	301,306	15·42
Cumberland .....	117,230	133,665	14·02	156,124	16·80	169,262	8·42
Derby .....	161,567	185,487	14·80	213,651	15·18	237,170	11·01
Devon .....	340,308	382,778	12·48	438,417	14·54	493,908	12·66
Dorset .....	114,452	124,718	8·97	144,930	16·21	159,385	9·98
Durham .....	149,384	165,293	10·65	193,511	17·07	239,256	23·64
Essex .....	227,682	252,473	10·89	289,424	14·64	317,507	9·71
Gloucester .....	250,723	285,955	14·06	336,190	17·56	387,398	15·23
Hereford .....	88,436	93,526	5·75	102,669	9·78	110,617	7·74
Hertford .....	97,393	111,225	14·23	129,731	16·61	142,844	10·11
Huntingdon .....	37,568	42,208	12·35	48,946	15·97	53,192	8·68
Kent .....	308,667	371,701	20·42	427,224	14·94	479,558	12·25
Lancaster .....	673,486	828,499	23·02	1,052,948	27·09	1,336,854	26·97
Leicester .....	130,082	150,559	15·74	174,571	15·95	197,003	12·85
Lincoln .....	208,625	237,634	13·90	283,058	19·12	317,465	12·16
Middlesex .....	818,129	953,774	16·58	1,145,057	20·06	1,358,330	18·62
Monmouth .....	45,568	62,105	36·29	75,801	22·05	98,126	29·45
Norfolk .....	273,479	291,947	6·75	344,368	17·95	390,054	13·27
Northampton .....	131,525	141,353	7·47	163,097	15·39	179,336	9·96
Northumberland .....	168,078	183,269	9·04	212,589	16·00	236,959	11·47
Nottingham .....	140,350	162,964	16·11	186,873	14·67	225,327	20·58
Oxford .....	111,977	120,376	7·50	138,224	14·82	153,526	11·08
Rutland .....	16,300	16,380	0·49	18,487	12·87	19,385	4·86
Salop .....	169,248	184,973	9·29	198,311	7·21	213,518	7·67
Somerset .....	273,577	302,836	10·70	355,789	17·48	403,795	13·49
Southampton .....	219,290	246,514	12·41	282,897	14·76	313,976	10·99
Stafford .....	242,693	294,540	21·36	345,972	17·46	409,480	18·36
Suffolk .....	214,404	233,963	9·12	271,541	16·06	296,317	9·12
Surrey .....	268,233	323,851	20·73	399,417	23·34	486,434	21·78
Sussex .....	159,471	190,343	19·36	233,328	22·59	272,644	16·85
Warwick .....	206,798	228,906	10·69	274,482	19·91	336,645	22·65
Westmoreland .....	40,805	45,922	12·54	51,359	11·84	55,041	7·17
Wilts .....	183,820	191,853	4·37	219,574	14·45	237,244	8·05
Worcester .....	146,441	168,982	15·39	194,074	14·85	222,655	14·73
York, E., N., and W. R.	859,133	986,076	14·78	1,173,895	19·05	1,371,966	16·87
Total .....	8,350,859	9,553,021	14·40	11,281,883	18·10	13,090,523	16·04
WALES.							
Anglesey .....	33,806	37,045	9·58	45,063	21·64	48,325	7·24
Brecon .....	32,325	37,735	16·74	43,826	16·14	47,763	8·98
Cardigan .....	42,956	50,260	17·00	57,784	14·97	64,780	12·11
Carmarthen .....	67,317	77,217	14·71	90,239	16·86	100,740	11·64
Carnarvon .....	41,521	49,655	19·59	58,099	17·01	66,818	15·01
Denbigh .....	60,299	64,249	6·55	76,428	18·95	82,665	8·16
Flint .....	39,469	45,937	16·39	53,893	17·32	60,244	11·78
Glamorgan .....	70,879	85,067	20·02	102,073	19·99	126,612	24·04
Merioneth .....	29,506	30,854	4·57	34,382	11·43	35,315	2·71
Montgomery .....	48,184	52,184	8·30	60,245	15·45	66,844	10·95
Pembroke .....	56,280	60,615	7·70	73,788	21·73	81,425	10·35
Radnor .....	19,135	20,417	6·70	22,533	10·36	24,743	9·81
Total .....	541,677	611,235	12·84	718,353	17·52	806,274	12·24
Total England & Wales	8,892,536	10,164,256	14·30	12,000,236	18·06	13,896,797	15·81



*Decrease per Cent. of each County for each Decade between 1801 and 1871.*

1841.	Increase	1851.	Increase	1861.	Increase	1871.	Increase	County.
No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	
107,936	13'04	124,478	15'33	135,287	8'68	146,257	8'11	Bedford
161,759	10'62	170,065	5'14	176,256	3'64	196,475	11'47	Berks
156,439	6'44	163,723	4'66	167,993	2'61	175,879	4'69	Buckingham
164,459	14'24	185,405	12'74	176,016	-5'06	186,906	6'19	Cambridge
395,660	18'32	455,725	15'18	505,428	10'90	561,201	11'04	Chester
342,159	13'56	355,558	3'92	369,390	3'89	362,343	-1'91	Cornwall
178,038	5'19	195,492	9'80	205,276	5'01	220,253	7'29	Cumberland
272,202	14'77	296,084	8'77	339,327	14'61	379,394	11'80	Derby
532,959	7'91	567,098	6'41	584,373	3'05	601,374	2'91	Devon
175,054	9'82	184,207	5'23	188,789	2'49	195,537	3'59	Dorset
307,963	28'71	390,997	26'96	508,666	30'09	685,089	34'68	Durham
344,979	8'65	369,318	7'06	404,851	9'62	466,436	15'21	Essex
431,495	11'38	458,805	6'33	485,770	5'88	534,640	10'06	Gloucester
113,272	2'40	115,489	1'96	123,712	7'12	125,370	1'33	Hereford
156,660	9'68	167,298	6'79	173,280	3'57	192,226	10'94	Hertford
58,549	10'07	64,183	9'62	64,250	0'10	63,708	-0'84	Huntingdon
549,353	14'55	615,766	12'09	733,887	19'18	848,294	15'59	Kent
1,667,054	24'70	2,031,236	21'84	2,429,440	19'61	2,819,495	16'06	Lancaster
215,867	9'58	230,308	6'69	237,412	3'08	269,311	13'44	Leicester
362,602	14'22	407,222	12'31	412,246	1'23	436,599	5'91	Lincoln
1,576,636	16'07	1,886,576	19'66	2,206,485	16'96	2,539,765	15'11	Middlesex
134,368	36'93	157,418	17'15	174,633	10'94	195,448	11'92	Monmouth
412,664	5'80	442,714	7'28	434,798	-1'79	438,656	0'89	Norfolk
199,228	11'09	212,380	6'60	227,704	7'21	243,891	7'11	Northampton
266,020	12'26	303,568	14'12	343,025	13'00	386,646	12'72	Northumberland
249,910	10'91	270,427	8'21	293,867	8'67	319,758	8'81	Nottingham
163,127	6'25	170,439	4'48	170,944	0'29	177,975	4'12	Oxford
21,302	9'89	22,983	7'89	21,861	-4'88	22,073	0'97	Rutland
225,820	5'76	229,341	1'56	240,959	5'07	248,111	2'97	Salop
435,599	7'87	443,916	1'91	444,873	0'21	463,483	4'18	Somerset
354,682	12'96	405,370	14'29	481,815	18'86	544,684	13'05	Southampton
509,472	24'42	608,716	19'48	746,943	22'71	858,326	14'91	Stafford
315,073	6'32	337,215	7'02	337,070	-0'04	348,869	3'50	Suffolk
584,036	20'07	683,082	16'96	831,093	21'67	1,091,635	31'35	Surrey
300,075	10'07	336,844	12'25	363,735	7'99	417,456	14'77	Sussex
401,703	19'32	475,013	18'25	561,855	18'29	634,189	12'87	Warwick
56,454	2'57	58,287	3'25	60,817	4'34	65,010	6'90	Westmoreland
256,280	8'03	254,221	-0'80	249,311	-1'93	257,177	3'16	Wilts
248,460	11'59	276,926	11'46	307,397	11'00	338,837	10'23	Worcester
1,592,059	16'04	1,797,995	12'93	2,033,610	13'10	2,436,355	19'81	York, E., N., & W. R.
14,997,427	14'56	16,921,888	12'84	18,954,444	12'01	21,495,131	13'41	Total
WALES.								
50,891	5'31	57,327	12'65	54,609	-4'74	51,040	-6'54	Anglesey
55,603	16'42	61,474	10'56	61,627	0'25	59,901	-2'80	Brecon
68,766	6'15	70,796	2'95	72,245	2'05	73,441	1'66	Cardigan
106,326	5'55	110,632	4'05	111,796	1'05	115,710	3'50	Carmarthen
81,093	21'36	87,870	8'36	95,694	8'90	106,121	10'90	Carnarvon
88,478	7'03	92,583	4'64	100,778	8'85	105,102	4'29	Denbigh
66,919	11'08	68,156	1'85	69,737	2'32	76,312	9'43	Flint
171,188	35'21	231,849	35'43	317,752	37'05	397,859	25'21	Glamorgan
39,332	11'38	38,843	-1'24	38,963	0'31	46,598	19'59	Merioneth
69,607	4'13	67,335	-3'26	66,919	-0'62	67,623	1'05	Montgomery
88,044	8'13	94,140	6'92	96,278	2'27	91,998	-4'45	Pembroke
25,458	2'89	24,716	-2'91	25,382	2'70	25,430	0'19	Radnor
911,705	13'08	1,005,721	10'31	1,111,780	10'55	1,217,135	9'47	Total
15,909,132	14'48	17,927,609	12'69	20,066,224	11'93	22,712,266	13'19	Total England & Wales

TABLE G.—Population and Rates of Increase or Decrease per Cent. of each Town in  
(The Towns arranged in the Numerical

		Boundary Taken.	1801.	1811.	Rate of Increase.	1821.	Rate of Increase.
1	London .....	Reg. General's tables of mortality	958,863	1,138,815	18'77	1,378,947	21'09
2	Liverpool (Lancashire) .....	M. and P.	82,295	104,104	26'50	138,354	32'90
3	Manchester (Lancashire) .....	P.	76,788	91,130	18'68	129,035	41'60
4	Birmingham (Warwickshire) ..	M. and P.	70,670	82,753	17'10	101,722	22'92
5	Leeds (Yorkshire) .....	"	53,162	62,534	17'63	83,796	34'00
6	Sheffield (Yorkshire) .....	"	45,755	53,231	16'34	65,275	22'63
7	Bristol (Gloucestershire) .....	"	61,153	71,433	16'81	85,108	19'14
8	Wolverhampton (Staffordshire) ..	P.	30,584	43,190	*41'22	53,011	22'74
9	Bradford (Yorkshire) .....	M. and P.	13,264	16,012	20'73	26,307	64'30
10	Newcastle-on-Tyne (North- umberland) .....	"	33,048	32,573	— 1'44	41,794	28'31
11	Stoke-upon-Trent (Stafford- shire) .....	P. (e)	23,278	31,557	*35'57	40,237	27'51
12	Hull (Yorkshire) .....	"	29,580	37,005	25'10	44,520	20'31
13	Salford (Lancashire) .....	M. and P.	18,088	24,744	36'80	32,600	31'75
14	Portsmouth (Hants) .....	"	33,226	41,587	*25'16	46,743	12'40
15	Oldham (Lancashire) .....	P. (e)	21,766	29,479	*35'43	38,201	29'59
16	Sunderland (Durham) .....	"	24,998	25,821	3'29	31,891	23'51
17	Brighton (Sussex) .....	"	7,440	12,205	64'05	24,741	*102'71
18	Merthyr Tydvil (Glamorgan- shire) .....	"	10,127	14,945	47'58	20,959	40'24
19	Leicester (Leicestershire) .....	M. and P.	17,005	23,453	37'92	31,036	32'33
20	Bolton (Lancashire) .....	P. (e)	17,966	24,799	*38'03	32,045	29'22
21	Nottingham (Nottinghamshire) ..	M. and P.	28,801	34,030	18'15	40,190	18'10
22	Preston (Lancashire) .....	M. & P. (e)	12,174	17,360	42'50	24,859	43'20
23	Blackburn (Lancashire) .....	P. (e)	11,980	15,083	25'90	21,940	*45'46
24	Dudley (Worcestershire) .....	"	10,107	13,925	37'78	18,211	30'78
25	Norwich (Norfolk) .....	M. and P.	36,854	36,256	— 1'62	50,288	*38'70
26	Huddersfield (Yorkshire) .....	P. (e)	7,268	9,671	33'06	13,284	37'36
27	Plymouth (Devonshire) .....	"	16,040	20,803	29'70	21,591	3'79
28	Birkenhead (Cheshire) .....	"	667	795	19'19	1,313	65'15
29	Halifax (Yorkshire) .....	"	12,010	12,766	6'29	17,056	33'61
30	Devonport (Devonshire) .....	P.	27,154	35,257	*29'84	39,621	12'38
31	Rochdale (Lancashire) .....	P. (e)	8,542	10,753	25'88	14,017	30'36
32	Derby (Derbyshire) .....	"	10,832	13,043	20'41	17,423	33'58
33	Southampton (Hants) .....	M. and P.	7,913	9,617	21'53	13,353	38'85
34	Bath (Somersetshire) .....	P. (e)	33,196	34,408	15'70	46,700	*21'59
35	Stockport (Cheshire) .....	M. and P.	14,830	17,554	18'31	21,726	23'83
36	Swansea (Glamorganshire) .....	M.	10,117	11,963	18'25	14,896	24'52
37	Gateshead (Durham) .....	M. and P.	8,597	8,782	2'15	11,767	33'99
38	Middlesborough (Yorkshire) .....	—	239	212	— 11'30	236	11'32
39	Walsall (Staffordshire) .....	P. (e)	10,399	11,189	7'60	11,914	6'48
40	Chatham (Kent) .....	"	12,940	15,787	22'00	19,177	21'47
41	Southport (Lancashire) .....	M.	3,201	3,999	24'93	4,614	15'38
42	Northampton (Northamp- tonshire) .....	P. (e)	7,020	8,427	20'04	10,793	28'07
43	South Shields (Durham) .....	M. and P.	11,011	15,165	*37'72	16,503	8'82
44	Cheltenham (Gloucestershire) ..	P. (e)	3,076	8,325	*170'65	13,396	60'91
45	Exeter city (Devonshire) .....	"	17,412	18,896	8'52	23,479	24'45
46	York city (Yorkshire) .....	M.	16,846	19,099	13'37	21,711	13'68
47	Cricklade (Wiltshire) .....	P.	22,139	23,777	7'40	27,038	13'67
48	Ipswich (Suffolk) .....	M. and P.	11,277	13,670	21'22	17,186	25'72
49	Yarmouth (Norfolk) .....	M.	16,573	20,448	*23'38	21,007	2'73
50	Coventry (Warwickshire) .....	P. (e)	16,034	17,923	11'78	21,448	19'67
51	Bury (Lancashire) .....	P.	9,152	11,302	23'49	13,480	19'27

England and Wales of Twenty Thousand Inhabitants and upwards, 1801 and 1871.  
(Order according to the Census of 1871.)

1831.	Rate of Increase.	1841.	Rate of Increase.	1851.	Rate of Increase.	1861.	Rate of Increase.	1871.	Rate of Increase.	
1,654,994	20'02	1,948,417	17'73	2,632,236	*21'24	2,803,989	18'70	3,254,260	16'06	1
201,751	*45'82	286,487	42'00	375,955	31'23	443,938	18'08	493,405	11'14	2
187,022	*44'93	242,983	29'92	316,213	30'14	357,979	13'21	379,374	5'97	3
143,986	*41'55	182,922	27'04	232,841	27'29	296,076	27'16	343,787	16'11	4
123,393	*47'25	152,074	23'24	172,270	13'28	207,165	20'26	259,212	25'12	5
91,692	*40'47	111,091	21'16	135,310	21'80	185,172	36'85	239,946	29'58	6
104,408	*22'68	125,146	19'87	137,328	9'73	154,093	12'20	182,552	18'47	7
67,514	27'36	93,245	38'11	119,748	28'42	147,670	23'32	156,978	6'30	8
43,527	*65'46	66,715	53'27	103,778	55'55	106,218	2'35	145,830	37'29	9
53,613	28'29	70,337	*31'19	87,784	24'81	109,108	24'29	128,443	17'72	10
51,589	28'21	68,444	32'67	84,027	22'77	101,207	20'45	124,493	23'00	11
51,911	16'60	67,308	*29'66	84,690	25'82	97,661	15'32	123,408	26'37	12
50,810	*55'86	68,386	34'59	85,108	24'45	102,449	20'38	121,401	18'50	13
50,389	7'80	53,032	5'24	72,096	*35'95	94,799	31'49	113,569	19'80	14
50,513	32'23	60,451	19'67	72,357	19'70	94,344	30'39	113,100	19'88	15
40,735	27'73	53,335	*30'93	67,391	26'36	85,797	27'31	104,490	21'79	16
41,994	69'73	49,170	17'09	69,673	41'70	87,317	25'33	103,758	18'83	17
27,281	30'16	43,031	*57'73	63,080	46'59	83,875	32'97	96,891	15'52	18
40,639	30'94	50,806	25'02	60,584	19'25	68,056	12'33	95,220	*39'91	19
42,245	31'83	51,029	20'79	61,171	19'88	70,395	15'08	92,658	31'63	20
50,220	24'96	52,164	3'87	57,407	10'05	74,693	*30'11	86,621	15'97	21
33,871	36'25	50,887	*50'24	69,542	36'66	82,985	19'33	85,427	2'54	22
27,091	23'48	36,629	35'21	46,536	27'05	63,126	35'65	82,853	31'25	23
23,430	28'66	31,232	33'30	37,962	21'55	44,975	18'47	82,249	*82'88	24
61,116	21'53	62,344	2'01	68,713	10'22	74,891	8'99	80,386	7'34	25
19,035	43'29	25,068	31'70	30,880	23'19	34,877	12'94	74,358	*113'20	26
31,080	*43'95	36,520	17'50	52,221	42'99	62,599	19'87	70,091	11'97	27
4,195	*219'50	11,563	175'64	34,469	198'10	51,649	49'84	65,971	27'73	28
21,552	23'48	27,520	27'69	33,582	22'03	37,014	10'22	65,500	*76'96	29
44,454	12'20	43,532	-2'07	50,159	15'22	64,783	29'15	64,034	-1'16	30
19,041	35'84	24,272	27'47	29,195	20'28	38,184	30'79	63,485	*66'26	31
23,627	35'61	32,741	38'57	40,609	24'03	43,091	6'11	61,381	*42'45	32
19,324	*44'72	27,744	43'57	35,305	27'25	46,960	33'01	53,741	14'44	33
50,800	8'78	53,196	4'72	54,240	1'96	55,528	-3'16	53,714	2'26	34
25,469	17'23	50,154	*96'92	53,835	7'34	54,861	1'91	53,014	-3'37	35
19,672	32'06	24,604	25'07	31,461	27'87	41,606	*32'25	51,720	24'31	36
15,177	28'98	20,123	32'59	25,568	27'06	33,587	31'36	48,592	*44'67	37
383	62'29	5,709	*1390'60	7,893	38'25	18,992	140'62	46,621	145'48	38
15,066	26'46	19,857	31'80	25,680	29'33	37,760	*27'04	46,098	22'08	39
21,124	10'15	24,269	14'89	28,424	17'12	36,177	*27'27	45,792	26'58	40
6,101	32'23	8,994	47'42	14,866	65'28	18,396	23'75	45,124	*145'29	41
15,351	*42'24	21,242	38'38	26,657	25'49	32,813	23'10	45,080	37'39	42
18,756	13'65	23,072	23'01	28,974	25'58	35,239	21'62	44,722	26'91	43
22,942	71'26	31,411	36'91	35,501	11'59	39,613	13'24	44,519	12'16	44
28,242	20'29	37,231	*31'83	40,688	9'29	41,749	2'61	44,226	5'93	45
26,260	20'95	28,842	9'83	36,303	*25'87	40,483	11'38	43,796	8'32	46
59,118	7'73	55,409	*21'61	35,513	0'27	36,893	3'91	43,622	18'24	47
20,201	17'54	25,384	25'66	32,914	*29'66	37,950	15'30	42,947	13'17	48
24,535	16'80	27,865	13'57	30,879	10'82	34,810	12'73	41,819	20'14	49
27,298	*27'27	31,032	13'68	36,812	18'63	41,647	13'13	41,348	-0'72	50
19,140	*41'99	24,846	29'81	31,262	25'82	37,563	20'15	41,344	10'07	51



TABLE G.—

		Boundary Taken.	1801.	1811.	Rate of Increase.	1821.	Rate of Increase.
52	Burnley (Lancashire).....	P. ( <i>new</i> )	3,918	5,405	37'96	8,242	*52'49
53	Hanley (Staffordshire) .....	M.	4,338	5,345	23'21	6,585	23'22
54	Cardiff (Glamorganshire) .....	"	1,870	2,457	31'39	3,521	43'30
55	Wigan (Lancashire) .....	M. and P.	10,989	14,060	*27'95	17,716	26'00
56	{ Tynemouth and North Shields (Northumberland) }	"	13,171	17,548	*33'23	23,173	32'05
57	Strood (Gloucestershire) .....	P.	27,732	28,448	2'58	36,340	*27'74
58	Worcester city (Worcestershire) .....	P ( <i>e</i> )	11,460	13,814	20'54	17,023	23'23
59	New Shoreham (Sussex) .....	P.	16,104	18,690	16'06	22,722	*21'57
60	{ Ashton-under-Lyne (Lanca- shire) .....	P. ( <i>e</i> )	6,391	7,959	24'53	9,222	15'87
61	Macclesfield (Cheshire) .....	"	8,743	12,299	40'67	17,746	*44'29
62	Chester (Cheshire) .....	"	15,174	16,140	6'37	19,949	*23'60
63	Cambridge (Cambridgeshire) ..	"	10,087	11,108	10'12	14,142	27'31
64	Hastings (Sussex) .....	"	2,982	3,848	29'04	6,111	58'81
65	Warrington (Lancashire) .....	P.	11,321	12,682	12'02	14,822	16'88
66	Reading (Berks) .....	M. ( <i>e</i> )	9,742	10,788	10'74	12,867	19'27
67	Oxford (Oxfordshire) .....	P. ( <i>e</i> )	11,694	12,931	10'58	16,864	*26'55
68	Carlisle (Cumberland) .....	M. and P.	9,415	11,476	21'89	14,416	25'62
69	Morpeth (Northumberland) ....	M.	4,859	5,288	8'83	5,853	10'69
70	Aylesbury (Buckinghamshire) ..	P.	16,993	18,435	8'49	21,717	*17'80
71	Dover (Kent) .....	M. and P.	8,028	11,230	*39'88	12,664	12'77
72	Wakefield (Yorkshire) .....	P ( <i>e</i> )	10,581	11,393	7'67	14,164	*24'32
73	Stockton (Durham) .....	—	3,936	4,187	6'38	2,956	18'36
74	Darlington (Durham) .....	M.	4,670	5,059	8'33	5,750	13'66
75	{ Newport Mon. (Monmouth- shire) .....	"	1,423	3,025	*112'58	4,951	63'67
76	Great Grimsby (Lincolnshire) ..	"	3,143	4,542	44'51	5,183	14'11
77	Lincoln (Lincolnshire) .....	M. and P.	7,197	8,599	19'48	9,995	*16'23
78	Colchester (Essex) .....	"	11,520	12,544	8'89	14,016	11'73
79	Maidstone (Kent) .....	P.	8,027	9,443	17'64	12,508	32'46
80	Wednesbury (Staffordshire) ....	M.	4,160	5,372	29'14	6,471	20'46
81	Dewsbury (Yorkshire) .....	"	4,566	5,059	10'80	6,380	26'11
82	Keighley (Yorkshire) .....	"	5,745	6,864	19'48	9,223	34'37
83	Scarborough (Yorkshire) .....	P. and M.	6,688	7,067	5'67	8,533	20'75
84	Hythe (Kent) .....	M.	2,987	4,768	59'62	4,489	—5'85
85	Shrewsbury (Salop) .....	M. and P.	14,739	16,825	14'15	19,854	*18'00
86	Heywood (Lancashire) .....	M.	6,697	8,001	19'47	9,922	24'01
87	Stratford (Essex) .....	"	3,910	4,905	15'45	5,882	19'92
88	Barnsley (Yorkshire) .....	"	3,606	5,104	41'54	8,284	*62'31
89	Torquay (Devonshire) .....	"	838	1,350	61'10	1,925	42'59
90	Over Darwen (Lancashire) ....	"	3,587	4,411	22'97	6,711	*52'14
91	Gravesend (Kent) .....	"	4,539	5,589	23'13	6,583	17'79
92	Wenlock (Salop) .....	P.	16,304	16,805	3'07	17,265	2'74
93	Staleybridge (Cheshire) .....	M.		(Not ascertainable)			
94	Canterbury city (Kent) .....	M. and P.	9,000	10,200	13'33	12,779	25'28
95	Leamington (Warwickshire) ....	M.	315	543	72'38	2,183	*302'02
96	Batley (Yorkshire) .....	"	2,574	2,957	14'88	3,717	25'70
97	Kidderminster (Worcestershire) ..	"	6,803	8,753	28'66	11,444	30'74
98	Luton (Bedfordshire) .....	"	3,095	3,716	20'07	4,529	21'88
99	Brentford (Middlesex) .....	"	5,035	5,361	6'48	6,608	23'26
Total .....			2,404,153	2,878,039	19'71	3,582,029	24'46

Note.—Where marked (*e*) the boundary

\* The decades thus marked show when



Contd.

1831.	Rate of Increase.	1841.	Rate of Increase.	1851.	Rate of Increase.	1861.	Rate of Increase.	1871.	Rate of Increase.	
10,026	21'65	14,224	41'87	20,828	46'43	28,700	37'79	40,858	42'36	52
8,282	25'77	10,218	23'38	25,369	*148'27	31,953	25'95	39,976	25'11	53
6,187	75'72	10,077	62'87	18,351	*82'11	32,954	79'58	39,675	20'40	54
20,774	17'26	25,517	22'83	31,941	25'18	37,658	17'90	39,110	3'86	55
23,206	0'14	25,416	9'52	29,170	14'77	34,021	16'63	38,941	14'46	56
59,932	9'89	37,992	-4'86	36,535	-3'84	35,517	-2'79	38,610	8'71	57
18,610	9'32	27,004	*45'10	27,528	1'94	31,227	13'44	38,116	22'06	58
25,356	11'59	28,638	12'94	30,553	6'69	32,622	6'77	37,984	16'44	59
14,035	52'19	22,678	*61'58	29,791	31'37	33,917	13'85	37,389	10'24	60
23,129	30'33	32,629	41'07	39,048	19'67	36,101	-7'55	35,450	-1'80	61
21,344	7'00	23,866	11'82	27,766	16'34	31,110	12'04	35,257	13'33	62
20,917	47'91	24,453	16'90	27,815	13'75	26,361	-5'23	33,996	28'96	63
10,097	*65'23	11,617	15'05	17,011	46'43	22,910	34'68	33'337	45'51	64
18,184	*22'68	21,346	17'39	23,363	9'45	26,947	15'34	33,050	22'65	65
15,595	21'20	18,939	21'43	21,456	13'30	25,045	16'75	32,313	*29'02	66
20,649	*26'19	24,258	17'48	27,843	14'78	27,560	-1'02	31,404	13'95	67
18,865	30'86	21,550	14'23	26,310	22'09	29,417	11'81	31,049	5'55	68
6,577	12'37	7,160	8'86	10,012	39'83	13,794	37'76	30,239	*119'22	69
24,162	11'26	25,337	4'86	26,794	5'75	27,090	1'10	28,760	6'16	70
15,645	23'54	19,189	22'65	22,244	15'92	25,325	13'85	28,506	12'56	71
15,932	12'48	18,842	18'27	22,057	17'06	23,150	4'95	28,069	21'25	72
7,685	55'06	9,727	26'57	9,710	-0'17	13,357	37'56	27,738	*107'67	73
8,574	49'11	11,033	28'68	11,582	4'98	15,789	36'32	27,729	*75'62	74
7,062	42'64	10,815	53'15	19,323	78'68	23,249	20'32	27,069	16'43	75
6,589	27'13	6,698	1'65	12,263	*83'08	15,060	22'81	26,982	79'16	76
11,217	12'25	13,896	23'88	17,533	26'17	20,999	19'77	26,766	*27'46	77
16,167	15'35	17,790	10'04	19,443	9'29	23,809	*22'46	26,343	10'64	78
15,790	26'24	18,086	14'54	20,801	15'01	23,058	10'85	26,237	13'79	79
8,437	30'38	11,625	37'79	14,281	22'85	21,968	*53'83	25,030	13'94	80
8,272	29'66	10,600	28'14	14,049	32'54	18,148	29'18	24,764	*36'46	81
11,176	21'17	13,413	20'02	18,259	*36'13	18,819	3'07	24,704	31'37	82
8,760	2'66	10,060	14'84	12,915	28'38	18,377	*42'29	24,259	32'01	83
4,623	2'99	8,939	93'36	13,164	47'27	21,367	*62'31	24,078	12'69	84
21,297	7'27	21,518	1'04	23,104	7'37	25,784	11'60	23,406	-9'22	85
14,229	*43'41	18,720	31'56	19,872	6'15	22,349	12'47	23,394	4'68	86
6,991	18'85	7,690	9'99	10,586	37'66	15,994	*51'09	23,286	45'59	87
10,330	24'70	12,310	19'17	13,437	9'15	17,890	33'14	23,021	28'68	88
3,582	86'08	5,982	67'00	11,474	*91'81	16,419	43'10	21,657	31'90	89
6,972	3'89	9,348	34'08	11,702	25'18	16,492	40'93	21,278	29'02	90
9,445	43'28	15,670	*65'91	16,633	6'15	18,782	12'92	21,265	13'22	91
17,435	0'98	18,016	3'33	20,588	*14'27	21,590	4'87	21,208	-1'77	92
				20,760	—	24,921	*20'04	21,092	-15'36	93
13,679	7'04	17,904	*30'89	18,398	2'76	21,324	15'90	20,962	-1'70	94
6,209	184'43	12,864	107'18	15,724	22'23	17,402	10'67	20,910	20'16	95
4,841	30'24	7,076	46'17	9,308	31'54	14,873	*59'79	20,871	40'33	96
16,036	*40'13	15,427	-3'80	18,462	19'67	15,399	-16'59	20,814	35'16	97
5,693	25'70	7,748	36'10	12,787	*65'04	17,821	39'37	20,733	16'34	98
7,783	17'78	8,407	8'02	9,828	16'90	13,958	42'02	20,232	*44'95	99
4,520,055	26'19	5,572,175	23'28	6,885,001	23'56	8,218,209	19'36	9,800,887	19'25	

has been extended in 1871.

the maximum increase was reached.

TABLE H.—*United Kingdom. Enumerated Population of the United Kingdom and of its Constituent Parts, at each of the Censuses 1801 to 1871, with the Numbers of the Army, Navy, and Merchant Seamen belonging to the Kingdom.*

[Census Returns. Copy of Table 3, p. 4, of "General Report," vol. iv, for 1871.]

Census Years.	United Kingdom, including Islands in British Seas, and Army, Navy, and Merchant Seamen Abroad.	United Kingdom, including Islands in British Seas, but excluding Army, Navy, and Merchant Seamen Abroad.	United Kingdom, excluding Islands in British Seas, and Army, Navy, and Merchant Seamen Abroad.
1801.....	16,237,300	15,795,287	15,717,287
'11.....	18,509,116	18,006,580	17,926,580
'21.....	21,272,187	20,982,092	20,893,584
'31.....	24,392,485	24,132,294	24,028,584
'41.....	27,057,923	26,854,969	26,730,929
'51.....	27,745,949	27,533,755	27,390,629
'61.....	29,321,288	29,070,932	28,927,485
'71.....	31,845,379	31,629,299	31,484,661

Census Years.	England and Wales.	Scotland.	Ireland.	Islands in the British Seas.	Army, Navy, Marines, and Merchant Seamen belonging to the Kingdom.
1801.....	8,892,536	1,608,420	5,216,331	78,000	442,013*
'11.....	10,164,256	1,805,864	5,956,460	80,000	502,536*
'21.....	12,000,236	2,091,521	6,801,827	89,508	289,095*
'31.....	13,896,797	2,364,386	7,767,401	103,710	260,191*
'41.....	15,914,148	2,620,184	8,196,597	124,040	202,954†
'51.....	17,927,609	2,888,742	6,574,278	143,126	212,194‡
'61.....	20,066,224	3,062,294	5,798,967	143,447	250,356‡
'71.....	22,712,266	3,360,018	5,412,377	144,638	216,080‡

\* At home and abroad.

† Abroad or on board vessels in ports, the latter being estimated at 28,520.

‡ Abroad only.

TABLE I.—*United Kingdom. Enumerated Population of the United Kingdom and of its Constituent Parts, including the Army, Navy, Marines, and Merchant Seamen Abroad, belonging to the Kingdom at each of the Censuses 1801 to 1871.*

[Copy of Table IV from "General Report," vol. iv, England and Wales.]

Census Years.	Enumerated Population.					Increase of Population.				
	United Kingdom.	England and Wales.	Scotland.	Ireland.	Islands in the British Seas.	United Kingdom.	England and Wales.	Scotland.	Ireland.	Islands in the British Seas.
1801 ...	16,237,300	9,156,171	1,678,452	5,319,867	82,810	2,271,816	1,298,358	205,592	765,129	2,737
'11 ...	18,509,116	10,454,529	1,884,044	6,084,996	85,547					
'21 ...	21,272,187	12,172,664	2,137,325	6,869,544	92,654	2,763,071	1,718,135	253,281	784,548	7,107
'31 ...	24,392,485	14,051,986	2,405,610	7,828,347	106,542					
'41 ...	27,057,923	16,035,198	2,652,339	8,244,187	126,249	2,665,438	1,938,212	246,729	415,790 <i>Decrease</i> 1,620,155	19,186
'51 ...	27,745,949	18,054,170	2,922,362	6,623,982	145,435					
'61 ...	29,321,288	20,228,497	3,096,808	5,850,309	145,674	2,524,091	2,174,327	174,446	773,673 <i>Decrease</i> 401,123	239
'71 ...	31,845,379	22,856,164	3,392,559	5,449,186	147,470					
Total increase, 1801 to 1871 .....						15,608,079	13,699,993	1,714,107	129,319	64,660

Note.—The population of Ireland is estimated for the years 1801 and 1811.

TABLE K.—*Total Estimated Consumption of Coal in the United Kingdom on the Basis of Diminishing Ratios (Decreasing Rate of Increase 5·831 per Cent. per Decade).*

[Copy of Table III in Coal Commissioners' Report, p. xvi.]

Year.	Estimated Population of Great Britain. [000's omitted.]	Estimated Consumption of Coal per Head.	Total Estimated Home Consumption per Annum. [000's omitted.]	Total Consumption per Century, including Exportation.
	No.	Tons.	Tons.	
1871 ....	26,063,	3·9636	103,300,	Mln. Tons. 20,144 home consumption 1,200 exported <hr/> 21,344 total in century
1881 ....	28,943,	4·4266	128,100,	
'91 ....	31,955,	4·5786	146,300,	
1901 ....	35,087,	4·6286	162,400,	
'11 ....	38,326,	4·6446	178,000,	
'21 ....	41,561,	4·6946	193,200,	
'31 ....	44,859,	4·6516	208,700,	
'41 ....	48,316,	4·6526	224,800,	
'51 ....	51,823,	4·6526	241,100,	
'61 ....	55,365,	4·6526	257,600,	
'71 ....	58,928,	4·6526	274,200,	
1981 ....	62,500,	4·6526	290,800,	36,306 home consumption 1,200 exported <hr/> 37,506 total in century
'91 ....	66,070,	4·6526	307,400,	
2001 ....	69,620,	4·6526	323,900,	
'11 ....	73,140,	4·6526	340,300,	
'21 ....	76,450,	4·6526	355,700,	
'31 ....	79,880,	4·6526	371,700,	
'41 ....	83,260,	4·6526	387,400,	
'51 ....	86,580,	4·6526	402,800,	
'61 ....	89,820,	4·6526	417,900,	
'71 ....	93,000,	4·6526	432,700,	
2081 ....	96,080,	4·6526	447,000,	50,501 home consumption 1,200 exported <hr/> 51,701 total in century
'91 ....	99,090,	4·6526	461,000,	
2101 ....	102,010,	4·6526	474,600,	
'11 ....	104,850,	4·6526	487,800,	
'21 ....	107,580,	4·6526	500,600,	
'31 ....	110,230,	4·6526	512,900,	
'41 ....	112,790,	4·6526	524,800,	
'51 ....	115,250,	4·6526	536,200,	
'61 ....	117,620,	4·6526	547,300,	
'71 ....	119,900,	4·6526	557,900,	
2181 ....	122,180,	4·6526	568,000,	35,465 home consumption 720 exported <hr/> 36,185 total for 60 years
'91 ....	124,180,	4·6526	577,800,	
2201 ....	126,200,	4·6526	587,200,	
'11 ....	128,110,	4·6526	596,100,	
'21 ....	129,950,	4·6526	604,600,	
'31 ....	131,700,	4·6526	612,800,	
Total consumption in 360 years .....				146,736 millions

TABLE KA.—*Total Estimated Consumption of Coal in the United Kingdom on the Basis of Diminishing Rates of Increase of the Population (viz., 4.694 per Cent. Decrease per Decade).*

[Amended copy of Table III in Coal Commissioners' Report, p. xvi.]

Year.	Estimated Population of Great Britain. [000's omitted.]	Estimated Consumption of Coal per Head.	Total Estimated Home Consumption per Annum. [000's omitted.]	Total Consumption per Century, including Exportation.
	No.	Tons.	Tons.	
1871 ....	26,249,	3.9636	104,039,	
1881 ....	29,383,	4.4266	130,067,	Mln. Tons. 21,650 home consumption 1,200 exported <u>22,850 total in century</u>
'91 ....	32,727,	4.5786	149,844,	
1901 ....	36,278,	4.6286	167,916,	
'11 ....	40,029,	4.6446	185,919,	
'21 ....	43,975,	4.6496	204,466,	
'31 ....	48,105,	4.6516	223,765,	
'41 ....	52,411,	4.6526	243,847,	
'51 ....	56,881,	4.6526	264,645,	
'61 ....	61,505,	4.6526	286,158,	
'71 ....	66,272,	4.6526	308,337,	
1981 ....	71,170,	4.6526	331,126,	44,025 home consumption 1,200 exported <u>45,225 total in century</u>
'91 ....	76,180,	4.6526	354,435,	
2001 ....	81,292,	4.6526	378,219,	
'11 ....	86,487,	4.6526	402,389,	
'21 ....	91,753,	4.6526	426,890,	
'31 ....	97,085,	4.6526	451,698,	
'41 ....	102,452,	4.6526	476,668,	
'51 ....	107,852,	4.6526	501,792,	
'61 ....	113,277,	4.6526	527,033,	
'71 ....	118,703,	4.6526	552,278,	
2081 ....	124,128,	4.6526	577,518,	68,803 home consumption 1,200 exported <u>70,003 total in century</u>
'91 ....	129,527,	4.6526	602,637,	
2101 ....	134,903,	4.6526	627,650,	
'11 ....	140,231,	4.6526	652,439,	
'21 ....	145,517,	4.6526	677,032,	
'31 ....	150,742,	4.6526	701,342,	
'41 ....	155,897,	4.6526	725,326,	
'51 ....	160,979,	4.6526	748,971,	
'61 ....	165,986,	4.6526	772,266,	
'71 ....	170,899,	4.6526	795,125,	
2181 ..	175,719,	4.6526	817,550,	8,176 home consumption 100 exported <u>8,276 total for ten years</u>
Total consumption in 310 years .....			146,354	

Note.—Total available coal in the United Kingdom, as estimated, 146,480 million of tons.



TABLE L.—*Showing the Estimated Population of Great Britain during the next Three Hundred and Ten Years from 1871. The Rate of Increase in 1871, viz., 12·533, constantly Decreasing at the Rate of 4·694 per Cent. per Decade.*

## GREAT BRITAIN.

Decade.	Increase per Cent. per Decade.	Estimated Future Population.
	Per cent.	No.
1871.....	12·533	26,248,723
1881.....	11·94	29,383,000
'91.....	11·38	32,727,000
1901.....	10·85	36,278,000
'11.....	10·34	40,029,000
'21.....	9·86	43,975,000
'31.....	9·39	48,105,000
'41.....	8·95	52,411,000
'51.....	8·53	56,881,000
'61.....	8·13	61,505,000
'71.....	7·75	66,272,000
'81.....	7·39	71,170,000
'91.....	7·04	76,180,000
2001.....	6·71	81,292,000
'11.....	6·39	86,487,000
'21.....	6·09	91,753,000
'31.....	5·81	97,085,000
'41.....	5·53	102,452,000
'51.....	5·27	107,852,000
'61.....	5·03	113,277,000
'71.....	4·79	118,703,000
'81.....	4·57	124,128,000
'91.....	4·35	129,527,000
2101.....	4·15	134,903,000
'11.....	3·95	140,231,000
'21.....	3·77	145,517,000
'31.....	3·59	150,742,000
'41.....	3·42	155,897,000
'51.....	3·26	160,979,000
'61.....	3·11	165,986,000
'71.....	2·96	170,899,000
'81.....	2·82	175,719,000

TABLE M.—*Showing the Estimated Population of England and Wales during the next Three Hundred and Ten Years from 1871. The Rate of Increase in 1871, viz., 12·990, constantly Decreasing at the Rate of 4·563 per Cent. per Decade.*

## ENGLAND AND WALES.

Decade.	Increase per Cent. per Decade.	Estimated Future Population.
	Per cent.	No.
1871.....	12·990	22,856,164
1881.....	12·40	25,690,000
'91.....	11·83	28,729,000
1901.....	11·29	31,973,000
'11.....	10·78	35,419,000
'21.....	10·28	39,061,000
'31.....	9·82	42,896,000
'41.....	9·37	46,916,000
'51.....	8·94	51,110,000
'61.....	8·53	55,470,000
'71.....	8·14	59,985,000
'81.....	7·77	64,646,000
'91.....	7·42	69,443,000
2001.....	7·08	74,358,000
'11.....	6·76	79,385,000
'21.....	6·45	84,506,000
'31.....	6·15	89,704,000
'41.....	5·87	94,969,000
'51.....	5·60	100,286,000
'61.....	5·35	105,652,000
'71.....	5·10	111,040,000
'81.....	4·87	116,448,000
'91.....	4·65	121,863,000
2101.....	4·44	127,274,000
'11.....	4·23	132,657,000
'21.....	4·04	138,016,000
'31.....	3·86	143,344,000
'41.....	3·68	148,620,000
'51.....	3·51	153,836,000
'61.....	3·35	158,990,000
'71.....	3·20	164,077,000
'81.....	3·05	169,081,000

TABLE N.—*Showing the Estimated Population of Scotland during the next Three Hundred and Ten Years from 1871. The Rate of Increase in 1871, viz., 9'550, constantly Decreasing at the Rate of 6'391 per Cent. per Decade.*

## SCOTLAND.

Decade.	Increase per Cent. per Decade.	Future Population per Decade.
	Per cent.	No.
1871.....	9'550	3,392,559
1881.....	8'94	3,696,000
'91.....	8'37	4,005,000
1901.....	7'83	4,319,000
'11.....	7'33	4,635,000
'21.....	6'86	4,953,000
'31.....	6'43	5,272,000
'41.....	6'01	5,589,000
'51.....	5'63	5,903,000
'61.....	5'27	6,214,000
'71.....	4'93	6,521,000
'81.....	4'62	6,822,000
'91.....	4'32	7,117,000
2001.....	4'05	7,405,000
'11.....	3'79	7,686,000
'21.....	3'55	7,959,000
'31.....	3'32	8,223,000
'41.....	3'11	8,479,000
'51.....	2'91	8,725,000
'61.....	2'72	8,963,000
'71.....	2'55	9,191,000
'81.....	2'39	9,411,000
'91.....	2'23	9,621,000
2101.....	2'09	9,822,000
'11.....	1'96	10,014,000
'21.....	1'83	10,198,000
'31.....	1'71	10,372,000
'41.....	1'61	10,539,000
'51.....	1'50	10,697,000
'61.....	1'41	10,848,000
'71.....	1'32	10,991,000
'81.....	1'23	11,126,000

TABLE O.—*Estimate of the Prospective Increase of the Population of London during Three Hundred and Ten Years from 1871. Initial Rate 16·06 per Cent. per Decade. Decrement on ditto 13·046 per Cent.*

## LONDON.

Decade.	Increase per Cent. per Decade.	Future Population per Decade.
	Per cent.	No.
1871.....	16·06	3,254,260
1881.....	13·965	3,708,600
'91.....	12·144	4,158,800
1901.....	10·560	4,598,000
'11.....	9·182	5,020,200
'21.....	7·984	5,241,000
'31.....	6·943	5,797,400
'41.....	6·037	6,147,400
'51.....	5·250	6,470,100
'61.....	4·565	6,765,500
'71.....	3·970	7,034,100
'81.....	3·452	7,277,000
'91.....	3·001	7,495,300
2001.....	2·610	7,690,900
'11.....	2·270	7,865,400
'21.....	1·974	8,020,700
'31.....	1·716	8,158,300
'41.....	1·492	8,280,000
'51.....	1·298	8,387,500
'61.....	1·128	8,482,000
'71.....	0·981	8,565,200
'81.....	0·853	8,638,300
'91.....	0·742	8,702,400
2101.....	0·645	8,758,500
'11.....	0·561	8,807,600
'21.....	0·488	8,850,500
'31.....	0·424	8,888,100
'41.....	0·369	8,920,900
'51.....	0·321	8,949,500
'61.....	0·279	8,974,500
'71.....	0·242	8,996,200
'81.....	0·211	9,015,300





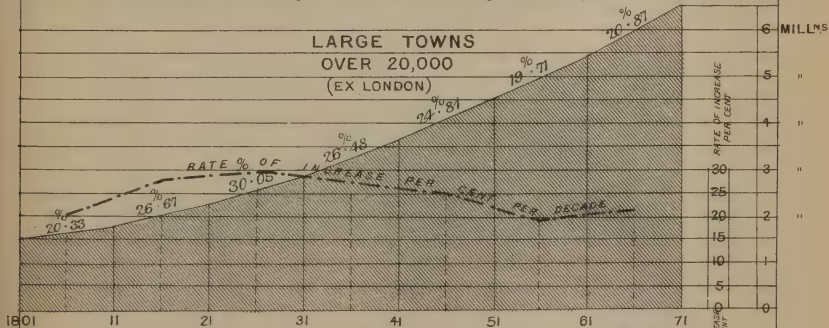
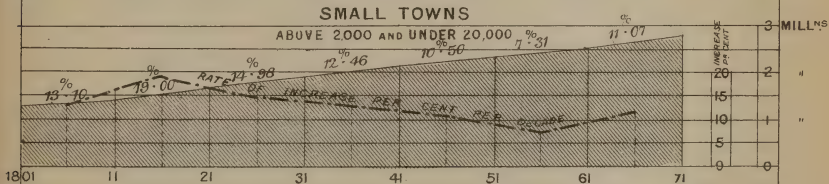
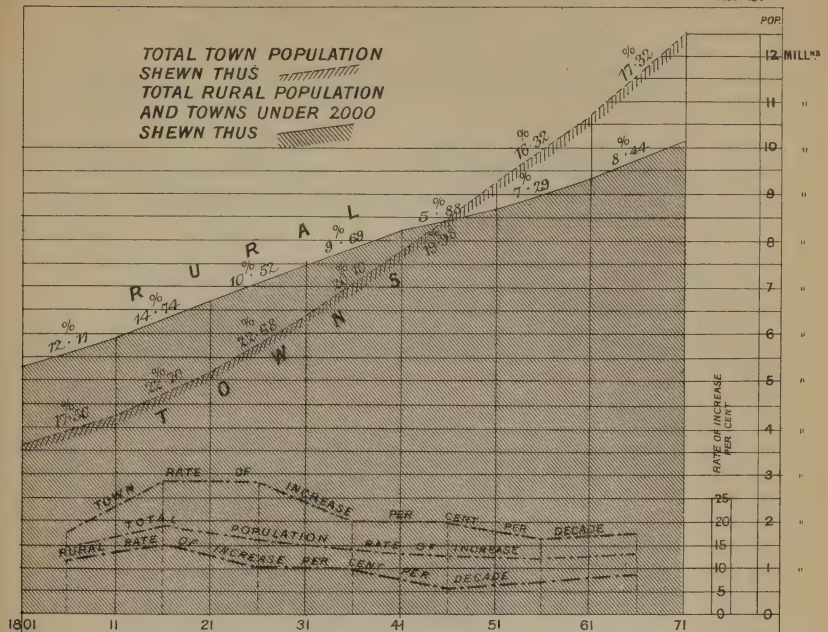
Plate 1.



Plate 1.



TOTAL TOWN POPULATION  
 SHEWN THUS   
 TOTAL RURAL POPULATION  
 AND TOWNS UNDER 2000  
 SHEWN THUS 

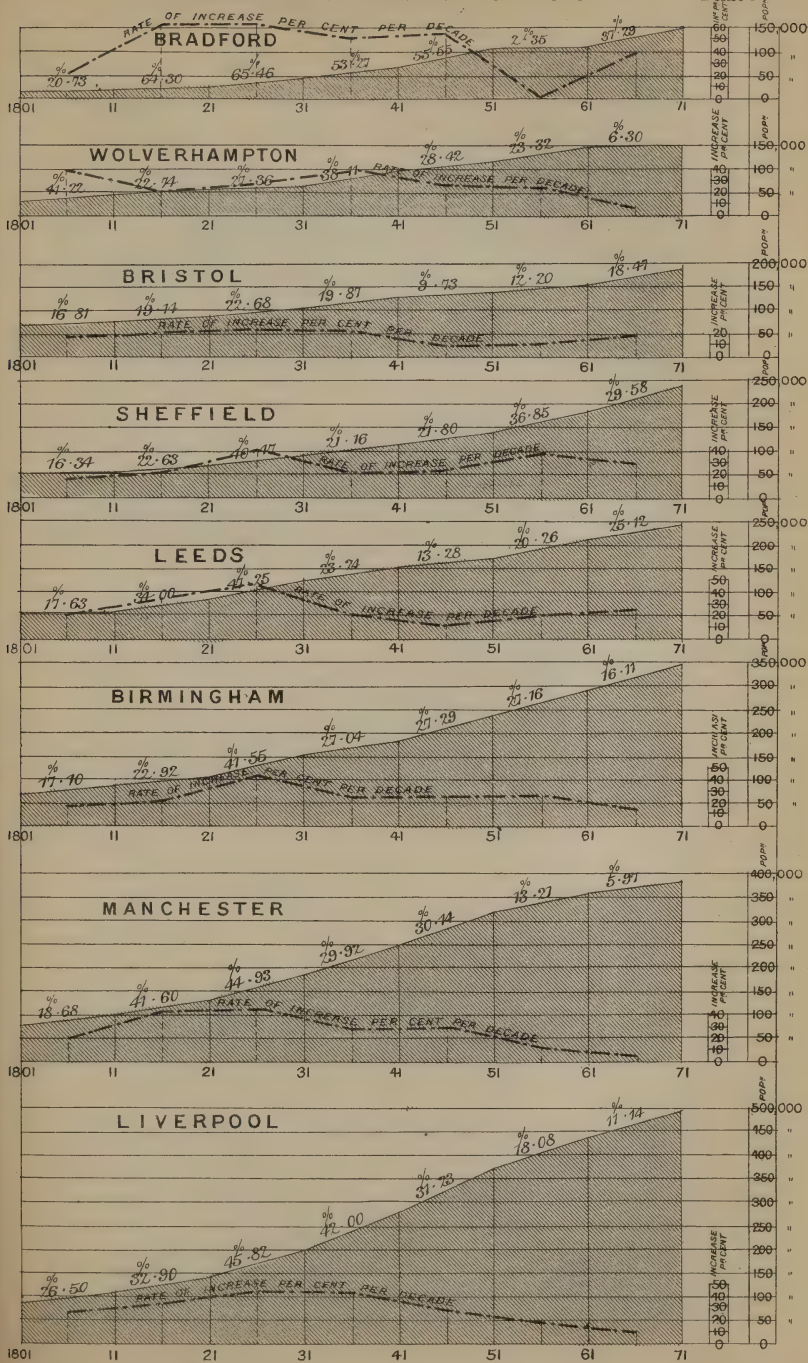






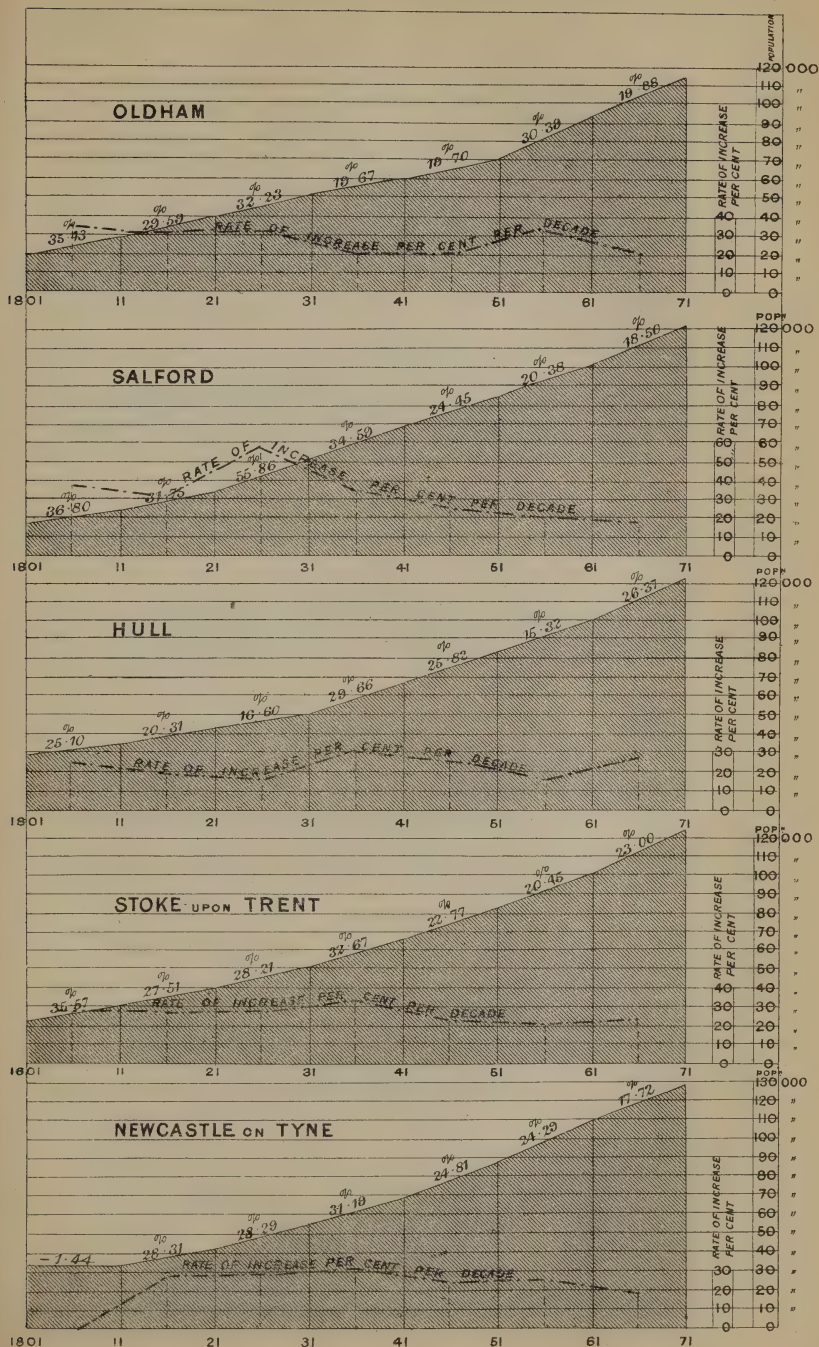
# POPULATION OF ENGLAND & WALES

Plate 3.



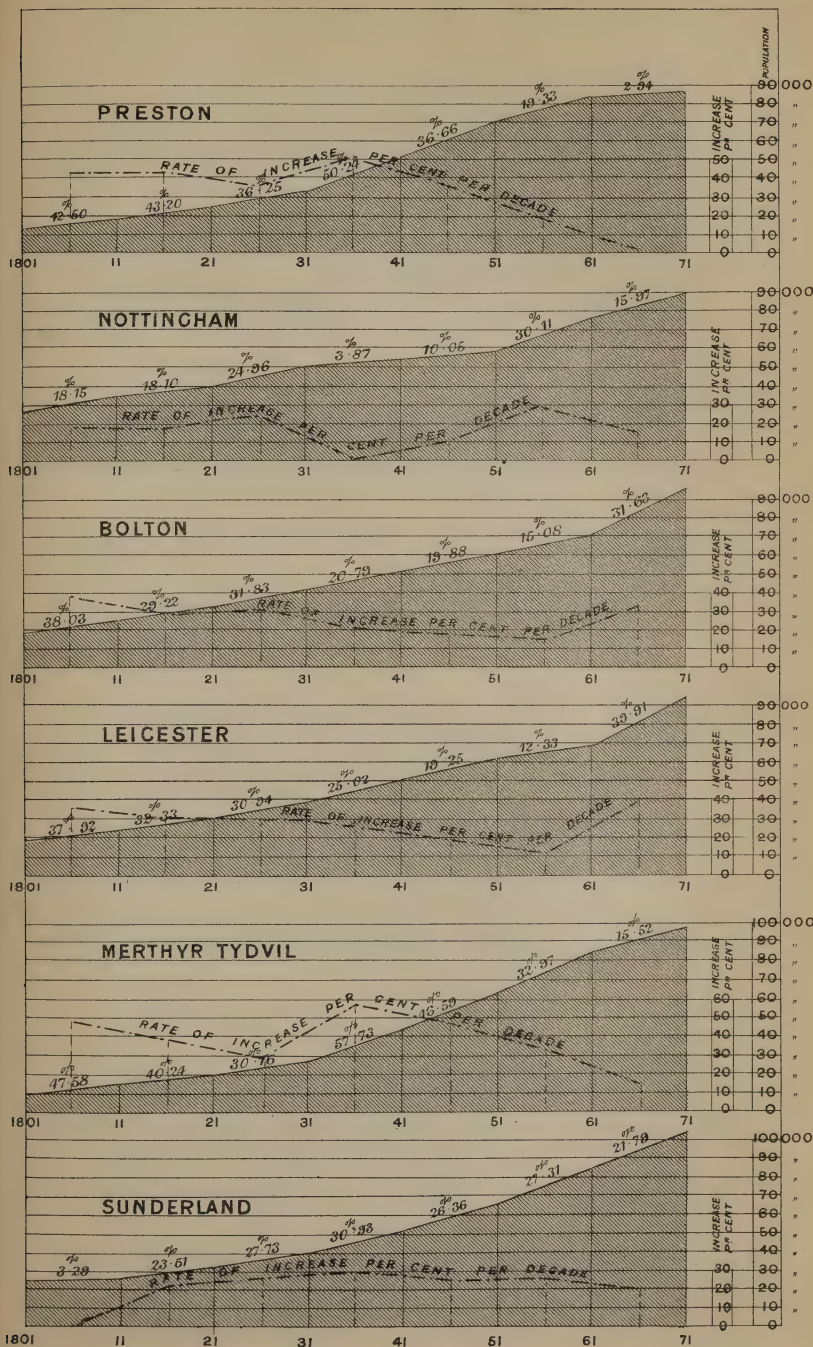


# POPULATION OF ENGLAND & WALES. *Plate 4.*

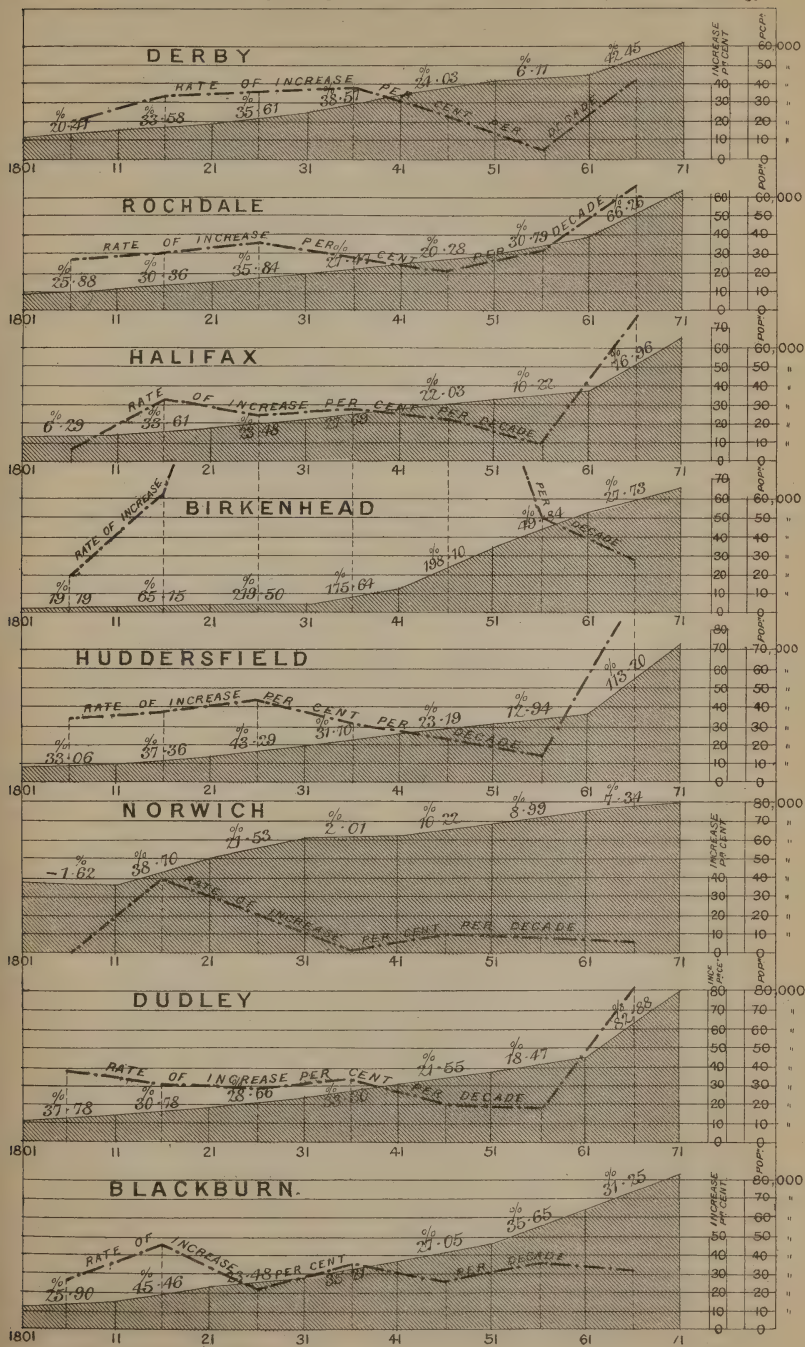
















POPULATION OF THE UNITED KINGDOM,  
FROM 1801 TO 1871.

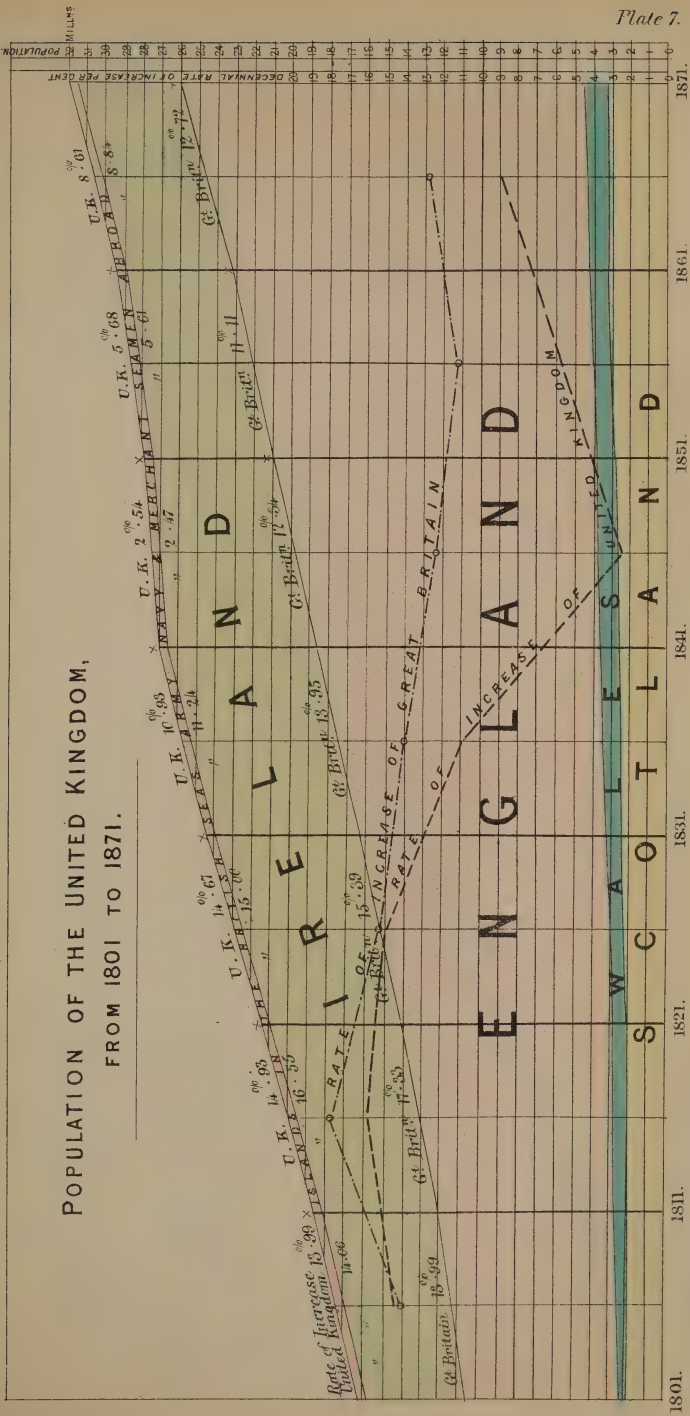
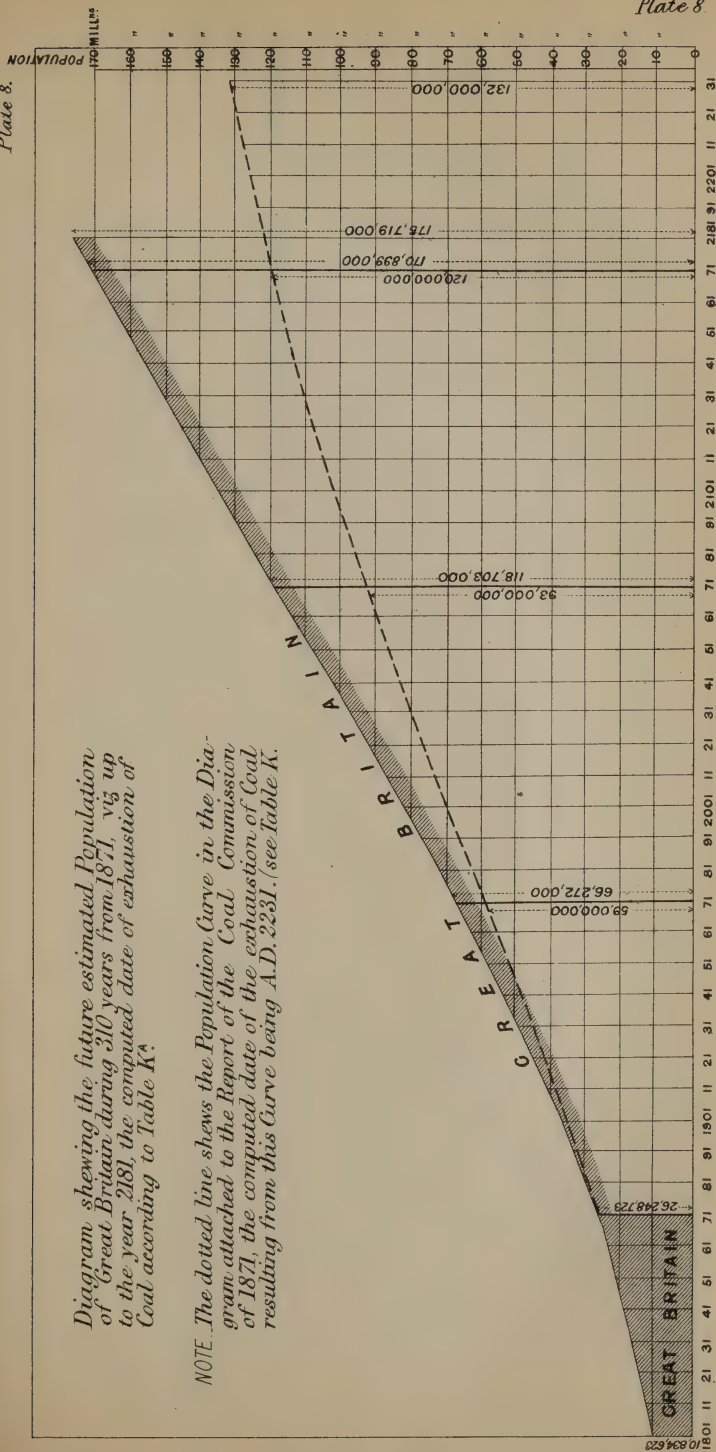




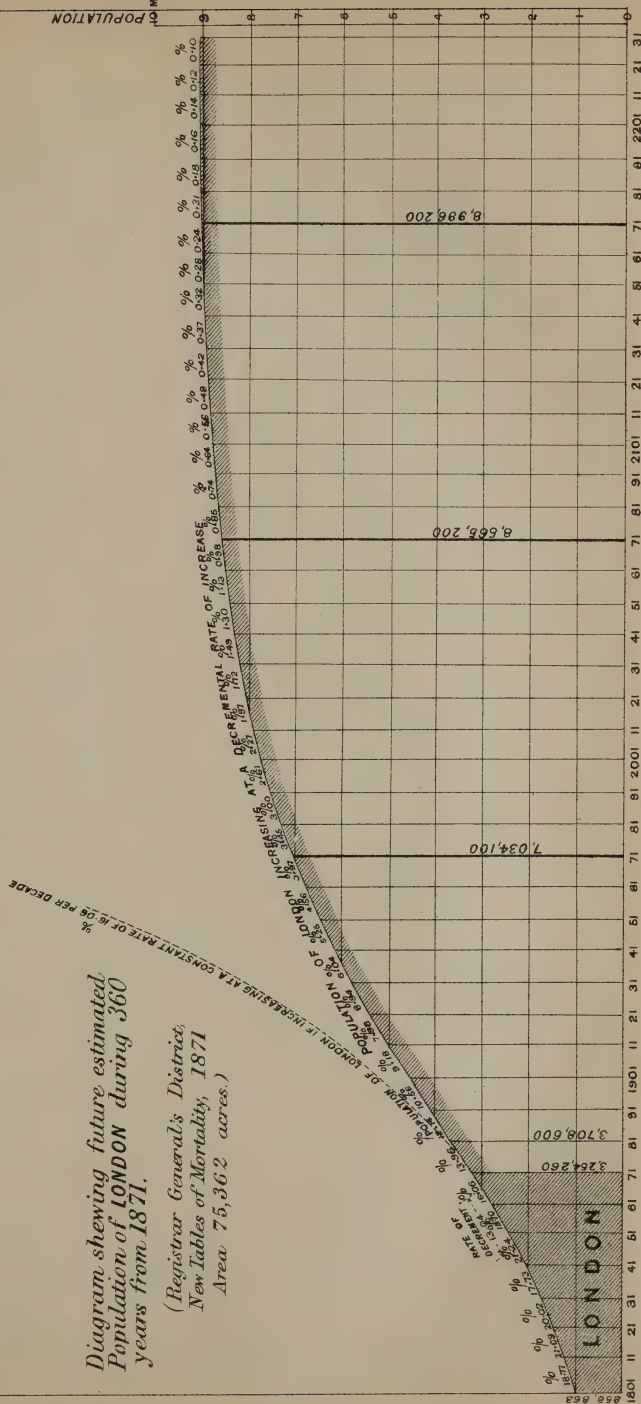
Diagram showing the future estimated Population of Great Britain during 310 years from 1871, viz up to the year 2181, the computed date of exhaustion of Coal according to Table K.

NOTE. The dotted line shows the Population Curve in the Diagram attached to the Report of the Coal Commission of 1871, the computed date of the exhaustion of Coal resulting from this Curve being A.D. 2231. (see Table K.)









*Diagram shewing future estimated  
Population of LONDON during 360  
years from 1871.*

(Registrar General's District,  
New Tables of Mortality, 1871  
Area 75,362 acres.)



DISCUSSION *on* MR. R. PRICE WILLIAMS'S PAPER.

SIR R. W. RAWSON, C.B., K.C.M.G., said he had devoted some time since yesterday morning to the study of the paper, and there were one or two points upon which he would say a few words; but before he entered into a consideration of the paper, he wished to say for himself, and he believed in doing so he would only give expression to the sentiments of every member of the Society, that he regretted very much that their esteemed colleague Dr. Farr (than whom no man in these islands, or perhaps in the world, would be better able to offer an opinion on this paper) was not present at that meeting. He rose thus early because he thought he could give a little interesting information on the subject, which he had derived from Mr. Price Williams's paper, and also because he wished to make a suggestion with regard to the validity of his deductions from the census returns. The paper was so valuable, and the materials collected had been obtained by such an amount of industry, that he was sorry he could not at once fully join with the author in his deductions, and admit the entire correctness of them. At the same time they were so important that he sincerely hoped that if Mr. Williams did not intend to publish the detailed statements from which his abstracts were printed, he would empower the Council of the Society to publish them, or to procure their publication by parliament or otherwise. Mr. Williams had put together the population of London in a series of years; that was very easy, but the separation of the population of all the other large towns, distinguished from the smaller towns, the aggregate of the smaller towns by themselves, and of the rural districts by themselves, was not light work, and the information thus supplied furnished such an amount of material for examination and for important deductions, that it ought not to be buried in manuscript. With regard to the doubt that occurred to him as to the validity of the author's deductions relating to the future increase of population, he found that between the years 1821 and 1861 there was a decrease, and between 1861 and 1871 an increase in the decennial increment. In 1821 the increase over 1811 was 18 per cent., the subsequent increase at each decennial period up to 1861 being  $15\frac{3}{4}$ ,  $14\frac{1}{2}$ ,  $12\frac{3}{4}$ , and nearly 12 per cent., from which the author argued that as in the fifty years from 1811 to 1861 there had been a gradual decrease in the increment, the same thing would go on till the end of his calculation—300 years. He (Sir R. W. Rawson) believed this arose not so much from a diminishing rate of increase in the population, as from an improvement in the enumeration of the population. At each census up to a recent period the increment caused by a more correct enumeration became successively smaller. The first census—that of 1801—was no doubt very imperfect, that of 1811 was somewhat less so. The experience of these two censuses enabled the commissioners in 1821 to make a very much better census, and he believed the decrease in the decennial increment up to a recent period arose to a great extent from the improved enumeration. This might not affect the whole of the cal-

culations; but he believed it would have some influence upon them. He did not see why railways, manufactories, and steam engines—admitted to be causes of an increase of the population at an early period—should lose their influences, nor why, if it were so, the downward career should stop in 1861, and an increase in the opposite direction should exhibit itself in 1871. Then, of course, came in, as affecting the figures differently at different periods, the elements of the army and navy, the seafaring population, the channel islands, and so on; but he did not know how they affected the decrease; and without a scrutiny of the figures used by the experts of the Registration Office, he was not prepared to admit that they were to expect a constantly diminishing rate in the increment of the population. It was only natural that the increment should increase rateably if the country was prosperous; and he was not therefore prepared to admit that they were to calculate on a continuous decrease of 5 per cent. decennially in the rate of increment throughout the next 200 years. The other points which he wished to bring under their notice were much more gratifying to him, because they were not matters of doubt, but of certainty. Mr. Williams had brought together separately the populations of the large towns, of the small towns, and the rural districts at each census from 1801 down to 1871—a vast work for an individual—and one for which not only this Society, but every man in the kingdom who has occasion to look into these matters, must feel indebted to him, and he sincerely hoped the Council would endeavour to get the details published. If there were any elements of error in the abstracts contained in the paper, he hoped they would be eliminated, so that it might form the groundwork for future reference and comparison, and that it might be followed up by the commissioners of future censuses, so that the public might have the same classified abstracts in each census which Mr. Price Williams had made. He had drawn two deductions from the paper which he thought would be interesting to the meeting. The first was the relation of the four classes to one another under a common denomination, which the paper did not show. He had prepared a table which showed that. The second calculation which he had made from the paper was to show how far the augmentation of towns had arisen from the natural growth, namely, the excess of births over deaths, and how far from the influx of population, and how the rural districts had lost by the efflux, which had been drawn into the towns. He submitted these calculations to the members, and he hoped they would consider them of sufficient interest for him to be allowed to detain them a few minutes. The paper did not quite separate London from the other large towns, but he had done so. The only way in which he could ascertain the normal increase of population in England and Wales was by taking the average of the whole country, assuming the immigration and emigration of the whole to balance one another. Taking then the census of 1811 as compared with the preceding census of 1801 (always subject to the question of improved enumeration to which he had referred, and subject to any correction on account of a difference in the amounts of immigration and emigration during that decade, which he would



suppose to be equal) for every 100 of increase on the average of the whole country, the increase in London was 138, in other large towns 140, in small towns 91 (the large towns having already begun to draw from the small ones to the extent of 9 in 100), and in the rural districts it was only 84; the migration from the rural districts into the towns then being 16 out of 100. He would run down each of these classes for the series of decades from 1811 to 1871, taking the average of the kingdom at 100. In London the increase was 138, 135, 165, 160; in 1851 it rose to 185, but in 1861 it fell to 162, and in 1871 was only 145; so that there was a gradual increase from 138 to 185 up to 1851, and a decrease from 185 in 1851 to 145 in 1871. It would be most interesting to add the figures of the approaching census, and to see what had happened during the last ten years, bringing the record up for seventy years—no small period in the life of a nation. For the large towns (exclusive of London) having over 20,000 inhabitants, the increase in the same decennial periods had been 140, commencing in 1811 with almost the same as in London (138), 134, 190, as compared with 165, 182, as compared with 160, and in 1851, 195, or nearly double the average of the kingdom, as compared with 185, which was also the maximum for London. In 1861 it fell from 195 to 165, and in 1871 to 152, London then being 145. With regard to the rest of the country, the excess was entirely on the side of the large towns and London, except in 1821, when there was a slight excess over the average in the small towns. In 1811 the increase in the small towns, instead of being 100, was only 91, then 105, 95, 86, 82, successively, and in 1861 it was only 61 (40 of their natural increase having gone to the augmentation of the large towns), while in 1871 it had risen to 83. But the most striking picture was in the rural districts. They began in 1811 with 84, then 81, 66, 67, down to 46 in 1851, when 54 per cent. of the normal increase had been drawn from the rural districts, rising afterwards to 61 and 64. These figures, he thought, would sufficiently clearly show how in London and the large towns the population had been drawn from the rural to the urban districts during the period under review. He had made some calculations with regard to the increment of each of these classes by natural growth, or excess of births over deaths, and by immigration or emigration. What he called the “natural growth” was of course affected by any difference in the rate of such growth in town and country districts respectively, and might be affected by an excess of immigration over emigration in the whole country, which would doubtless be directed towards the towns. During the decade from 1801 to 1811 the increase in London by natural growth was 137,000, and by immigration only 42,000. Then in each of the next three decades, the increase was 205,000, 218,000, and 239,000 by natural growth, and by immigration, 34,000, 58,000, and 53,000; but in 1851 came this change, the increase by natural growth was 247,000, and by immigration 166,000, or three times the amount of immigration of the preceding decade. In 1861 the increase by natural growth was 281,000 and by immigration 159,000. The effect of this immigration into London in those two decades being to increase the increment by natural growth in 1871 to 369,000—a

very large augmentation, whilst the immigration was only 78,000, or about half the number in the preceding decade. He would be happy to hand the calculations he had made to Mr. Price Williams and the Council, if they thought worth while to examine them. With regard to the relative increase of these four classes between 1801 and 1871, the population of London had increased 339 per cent., the population now being more than three times what it was in 1801, while the large towns had increased 452 per cent., or  $4\frac{1}{2}$  times, the small towns 231 per cent., while the rural districts had only increased 92 per cent. There were other points to which he would refer had he not occupied so much time, but he thought what he had shown would indicate the immense value of the paper read by Mr. Price Williams, and he would again express the hope that the materials from which the tables furnished were derived would be printed in detail.

*Note to Sir R. W. Rawson's Remarks.*

*No. 1.—Statement showing the Population of England and Wales, and of London, Large Towns, Small Towns, and Rural Districts separately; with the Percentage Increase of each Class separately, and of each Class compared with the Average of England and Wales, in each Decade from 1801 to 1871.*

Years.	Total: England and Wales.	London.	Other Large Towns: with Population over 20,000.	Small Towns: with Population over 2,000 and under 20,000.	Rural Districts: including Towns under 2,000.
1801 ....	8,892,536	958,863	1,445,290	1,211,092	5,277,291
'11 ....	10,164,256	1,138,815	1,739,224	1,369,757	5,916,460
'21 ....	12,000,236	1,378,947	2,203,082	1,630,046	6,788,661
'31 ....	13,896,797	1,654,994	2,865,061	1,874,112	7,502,630
'41 ....	15,909,132	1,948,417	3,623,758	2,107,562	8,229,395
'51 ....	17,927,609	2,362,236	4,522,765	2,328,941	8,713,667
'61 ....	20,066,224	2,803,989	5,414,220	2,499,051	9,348,964
'71 ....	22,712,266	3,251,913	6,546,627	2,775,739	10,137,987
Percentage Increase in each Decade.					
1811 ....	14'30	18'77	20'03	13'10	12'11
'21 ....	18'06	21'09	24'37	19'00	14'74
'31 ....	15'81	20'02	30'00	14'98	10'52
'41 ....	14'48	17'73	26'47	12'46	9'69
'51 ....	12'69	21'24	24'81	10'50	5'88
'61 ....	11'93	18'70	19'71	7'31	7'29
'71 ....	13'19	15'97	20'99	11'07	8'44
Percentage Increase of each Class in each Decade, compared with the Average of England and Wales.					
	London.	Other Large Towns.	Average of England and Wales.	Small Towns.	Rural Districts.
1811 ....	1'38	1'40	1'00	0'91	0'84
'21 ....	1'35	1'34	1'00	1'05	0'81
'31 ....	1'65	1'90	1'00	0'95	0'66
'41 ....	1'60	1'82	1'00	0'86	0'67
'51 ....	1'85	1'95	1'00	0'82	0'46
'61 ....	1'62	1'65	1'00	0'61	0'61
'71 ....	1'45	1'52	1'00	0'83	0'64

No. 2.—Statement of the Actual, Percentage, and Proportionate Rate of Increase of the Population of London, the Large and Small Towns respectively, and the Rural Districts of England and Wales, by Natural Growth (excess of Births over Deaths), and by Migration separately, in each Decade from 1811 to 1871.

Years.	London.					
	Increase in each Decade.		Percentage Rate of Increase.		Relative Percentage Proportion of Increase.	
	By Natural Growth.	By Immigration.	By Natural Growth.†	By Immigration.	By Natural Growth.	By Immigration.
1811 ....	137,117	42,835	14·30	4·46	76·2	23·8
'21 ....	205,669	34,463	18·06	3·02	85·4	14·6
'31 ....	218,011	58,036	15·81	4·21	79·0	21·0
'41 ....	239,643	53,780	14·48	3·25	81·7	18·3
'51 ....	247,254	166,565	12·69	8·55	59·8	40·2
'61 ....	281,814	159,939	11·93	6·75	63·8	36·2
'71 ....	369,846	78,078	13·19	2·78	82·6	17·4
Average	—	—	—	—	74·0	26·0
Other Large Towns.						
1811 ....	206,676	87,268	14·30	6·00	70·3	29·7
'21 ....	314,103	149,755	18·06	8·61	67·7	32·3
'31 ....	348,307	313,672	15·81	14·23	52·6	47·4
'41 ....	414,860	343,837	14·48	12·00	54·7	45·3
'51 ....	457,355	439,152	12·69	12·12	51·2	48·8
'61 ....	539,565	351,890	11·93	7·77	60·6	39·4
'71 ....	714,135	418,272	13·19	7·72	63·2	36·8
Small Towns.						
	Increase in each Decade.		Percentage Rate of Increase or Decrease.			
	By Natural Growth.	By Immigration.	By Natural Growth.	By Immigration.	By Natural Growth.	By Immigration.
1811 ....	173,186	Loss 14,521	14·30	—	1·20	—
'21 ....	247,379	Gain 12,910	18·06	—	0·94	—
'31 ....	257,710	Loss 13,644	15·81	—	0·83	—
'41 ....	271,391	„ 37,941	14·48	—	2·02	—
'51 ....	267,449	„ 46,070	12·69	—	2·18	—
'61 ....	277,842	„ 107,732	11·93	—	4·63	—
'71 ....	329,624	„ 52,936	13·19	—	2·11	—
Rural Districts.						
	Natural Increase.	Actual Increase.	Loss.	Increase by Natural Growth.*	Loss by Emigration.	Proportion of Increase which Migrated.
1811 ....	754,652	639,169	115,483	14·30	2·19	15·30
'21 ....	1,068,512	872,201	196,311	18·06	3·32	18·37
'31 ....	1,073,287	713,969	359,318	15·81	5·29	33·48
'41 ....	1,086,380	726,765	359,615	14·48	4·79	30·31
'51 ....	1,044,310	484,272	560,038	12·69	6·80	53·62
'61 ....	1,039,540	635,297	404,243	11·93	4·64	38·88
'71 ....	1,241,128	789,023	452,105	13·19	4·83	36·82
Total ...	—	—	2,447,113	—	—	—

\* Assumed to be that of the average of England and Wales.

*No. 3.—Percentage Proportions of the Town and Rural Population of England and Wales in 1801 and 1871, and the Actual Percentage Increase of each Class during that Period.*

	Percentage Population.		Actual Percentage Increase in 1871.
	1801.	1871.	
London .....	10·8	14·4	339
Other large towns .....	16·3	28·8	452
Small towns .....	13·6	12·2	231
Rural districts .....	59·3	44·6	92
Total .....	100·0	100·0	—

*No. 4.—Statement showing what the Population of the Rural Districts of England and Wales would have been if they had Increased from 1801 to 1871 in the same Proportion as the Population of the whole of England and Wales.*

Increase from.....	5,277,291	in 1801	
To .....	13,473,219	„	'71 = 155 per cent.
Instead of .....	10,137,987		= 92 „
A difference of .....	3,335,232		= 63 „

Mr. A. H. BAILEY (President of the Institute of Actuaries) remarked that Mr. Price Williams said, "In the absence of any census returns, the amount of the population prior to 1801 can only be approximately arrived at;" but he did not think the author had put sufficient emphasis on the very small reliance that could be placed on the returns prior to 1801. The poll tax was never levied on the whole population, the hearth tax excluded all cottages, and all the calculations of the numbers of the population were arrived at by an enumeration of the houses, and an estimate of the men, women, and children who were supposed to occupy them; and these calculations were frequently materially affected by political views. Thus in the parish of All Saints', Northampton, Dr. Price, from observations on the registers of baptisms and burials, came to the conclusion that the population was stationary—the fact being that there was an unusual proportion of Baptists in the town and parish who were not calculated, and by this hypothesis of a stationary population was brought about ("Northampton Table") an exceedingly erroneous table, and one which had caused a great deal of confusion. He thought little notice should be taken of the last century, for he could not believe that the rate of increase of the population in the last decade of the last century was only  $2\frac{1}{2}$  per cent., while in the first decade of this century it was 14·3 per cent., and that during what was throughout for the most part a period of war; but he could not agree with Sir Rawson Rawson that little reliance was to be placed on the census returns in the early part of this century. No doubt improvements in taking the censuses had been made, but these were in collateral objects such as ages and



occupations, rather than in counting the heads of the population. The early censuses in this respect, he thought, might reasonably be depended upon. There were two difficulties that presented themselves to his mind, one being that Scotland and Ireland were excluded from the returns. From both countries there was always, he thought, a considerable immigration into England; and the other was the influence of emigration to the colonies, the United States, and other parts of the world. He believed there were no trustworthy statistics of emigration until a comparatively recent date. Then as to the divisions made by Mr. Price Williams, there was a little ambiguity, because what was a rural population in 1801 was perhaps a town population in 1871. For instance, he found that in 1801 the population of Middlesborough-on-Tees was 239, whereas it was 46,621 in 1871, or an increase of about two hundred times, so that this would interfere with the general results. Then as to the question of boundaries. For instance, the question might be asked, what is London? There was the registration district of London, the southern division of which was, he thought, Streatham; but surely Croydon might be included in London. The extension of railways had brought people to be called Londoners who would not have been so called in the early part of the century, and he thought the question of boundary was a serious difficulty in all these calculations. He noticed that Brighton had made the greatest progress amongst the towns of 100,000 and upwards between 1801 and 1871.

Mr. N. A. HUMPHREYS thought they must all feel very much indebted to the writer of the paper for his wonderful industry, and for the immense amount of valuable facts which had been collected. With regard to the opinion expressed by the author, that the estimated increase of the population of the small towns, viz., 11·07 per cent., was too high, and that probably the actual population enumerated in 1881 would amount to no more than 25,500,000, he wanted to know what reason there was to support that opinion. They knew that up to 1861, there had been a steady decrease in the rate of increment, whereas an increase occurred between 1861 and 1871; and that all the facts since 1871 pointed to the most indubitable conclusion that the rate of increment of increase had been fully maintained since 1871. The annual natural increase of population was 11·9 per 1,000 in 1851-60, 12·6 in the decade 1861-70, and increased to 14·02 in the nine years ending 1879, showing that the actual increment has been more than maintained during the present decade. He thought the assumption, that in estimating the population we must take into account a continuance of an annual decrement in the increase was quite an erroneous one. Mr. Price Williams estimated the probable population at 25½ millions in 1881, while Dr. Farr's method estimated it at 25,700,000. The registrar-general in 1871 estimated the population of London within 8,000 of the actual numbers returned; that was by taking into account the ascertained rate of increase during three preceding decades. In England and Wales, and in the manufacturing towns especially, it did not seem possible to invent a theory

which would be applicable to a number of towns. The only satisfactory remedy for this difficulty being to hold a census more frequently than once in ten years.

Mr. CORNELIUS WALFORD thought the problems connected with the population of the last century had never had the attention paid to them which they deserved. There were special circumstances at work in the last century with which they were all familiar. The increase in the rate of population would always be about the same in each of the different great races. The Anglo-Saxon race had always been a prolific one, and it would in all probability remain so. In the last century there were continuous wars, and he would very much like to see (he had at one time intended to make one himself) an estimate of the drain of the population of this country by the wars, naval and military, for the number was so prodigious that he believed it would almost account for the want of increase in the population at that period. Besides the lives lost in the two services—army and navy—a very large migration to America took place by those who desired to escape compulsory service, as also from religious persecution. The armies serving in the field would not be a fair estimate, because foreigners (mercenaries) were frequently paid to fight for us. Regarding the subject of population generally, he had been weak enough, some years since, to read all the books on the subject that had been published in this country (he had about sixty of these in his own library), but he could not say that he knew much more about the actual facts after than he did before he began his reading, for the statements of the various authors were exceedingly conflicting; but there was one man whose writings commended themselves particularly to his judgment: he meant those of Mr. Rickman, whose report on the census of 1831 was well known. That was one of the very few books on population which the student might study with advantage. Mr. Bailey had anticipated him in referring to the question of the boundaries of some towns, especially with regard to Manchester and Liverpool, and perhaps there were no two towns in the country where the increase had been more marked or more continuous, and whatever statistics might say as to the apparent want of increase, those statistics were misleading, for the population spread entirely beyond the old boundaries. With regard to the increase of population between 1811 and 1821, all students of this question would know that after the drain of a great war nature seemed to reassert her sway, and production increases at more than the normal rate. He believed this would be found to have been the case in all countries. In 1851 there was another marked change, which he believed was due to the extension of railways and the adoption of free trade. Free trade largely developed our manufactures, and the towns grew very largely, and railways tended to take people into these large towns; but in later decades a reaction had set in; railways were no longer confined to the great centres; manufacturing were being removed to smaller towns away from the great centres, in consequence of the economy of living in these smaller towns. He believed nearly every circumstance of prominence in

the tables of the author could be explained and accounted for on rational principles, and there was not much fear but that the increase would go on in the future as in the past. It would, however, be a happy day for the country when, by the cultivation of habits of thrift, large families would no longer be associated with notions of pauperism and poor rates. He thanked the author for his paper.

Mr. FREDERICK HENDRIKS observed that it was interesting in inquiries relating to the progress of population, to look back upon some of the old forecasts of those who had published their speculations upon this subject, and to see how far they had been realised in the experience of the past. The estimates as to what might probably be the future population of England and Wales that were printed, in 1662, by Captain Graunt, a London citizen, under the auspices of the Royal Society, were based upon the most trustworthy and accurate methods of deduction applicable at that period. The leading data used by Captain Graunt were the numbers of deaths and of births recorded in the first half of the seventeenth century in certain London and country parishes, where the number of the inhabitants was known, perhaps roughly, but still with a sufficient approach to accuracy. It would appear that the population of England and Wales in 1662 was estimated at 6,440,000, or in round figures at  $6\frac{1}{2}$  millions, of whom it was supposed that the people in and about London constituted a fifteenth part. Captain Graunt, after as careful a study as he could give to the London and country bills of mortality, came to the conclusion that the London mortality was about 1 in 32 over and above those who died of the plague, whilst the country mortality was not over 1 in 50 per annum. Now it is very curious to find that even if we throw into the estimate the mortality from the plague, and then take a total combined average of what may be called the general population mortality, urban and rural, as indicated by Captain Graunt's calculations in 1662, the result is an average of about  $2\frac{1}{4}$  per cent. per annum, or say 1 in about  $44\frac{1}{2}$ . This does not differ to any material extent from the actual mortality of England and Wales now, in 1880, after the lapse of more than two centuries since the estimate was framed. This deserves to be considered by our sanguine sanitary reformers, who think that so vast a diminution has been taking place in the last two centuries in the rate of mortality. It also affords a certain degree of encouragement to such speculative inquiries as those now given to this Society in Mr. Price Williams's painstaking essay, and it is to be hoped that some statistician of two centuries hence will derive some such instruction from it as we of the present day can derive from looking back to old John Graunt's figures. As nearly as he (Mr. Hendriks) recollected what Captain Graunt said about the other factor in the growth of population, namely, the births, and their excess over deaths, it was made out that the result was to double the people in the country in about 280 years, and in London in about seventy years, the chief reason being that so many "breeders," as Captain Graunt called them, left the country for the metropolis, and bred there; whilst those who bred in the country



were almost exclusively those who were born there. Of course at such rates of doubling of the population, the number of inhabitants in England and Wales at the present time would not be one-half of what it really is. Where then was the chief error in Captain Graunt's prognostications? Partly in its assuming that the number of children born to each family would not exceed four, whilst it has really been about five to six. This has greatly arisen also from his not foreseeing—although it is hard upon him to say he ought to have foreseen it—that the urban populations of this country, and the greater inducements and means for increase such populations would give rise to, as compared with those of rural populations, would receive a vast stimulus through this country becoming a manufacturing, instead of an essentially agricultural, community. Even in comparing the movements of population, such as Mr. Price Williams has given for various towns at decennial periods in this nineteenth century, we must cautiously consider whether we are really comparing like with like. In Lancashire and in several of the midland counties, for example, towns now closely peopled were, at some of these decennial periods, even within the memory of many present in this room, simply small country towns, or even only agglomerations of persons dependent chiefly on agriculture. These places are now the seats of flourishing manufactures and trades, affording such continuous employment to labour that higher ratios of marriage and of births to population have prevailed there than would have been experienced had they continuously remained what they formerly were. The exact growth of the change is in some cases more gradual than in others, but its effect on the increment of increase is obvious. The question is, after all, so large, and affected by so many distinctly disturbing causes, that it becomes of the first importance to study their leading elements in the estimate of the trustworthiness of any forecasts ahead, even for the next decennial period, and much more so in prognostications, interesting though they may be, which are to receive their fulfilment at so distant a date as is covered by Mr. Price Williams's figures.

Mr. G. HURST was of opinion that a different state of things would exist in the future as to the population of England and Wales. If the increase went on as at present the population would be trebled in a century. Our imports were increasing above the exports more and more, and he thought the checks enunciated by Malthus of prudence, poverty, and crime for restraining the population would come into operation very rapidly, and he did not believe that any real approximation could be arrived at with regard to the future population. We were depending so greatly on the foreigner for our food supplies that any disturbance in the supply might be a great check to the increase. If there come no very serious checks the country would be overrun with population, and it would be a great deal too crowded a century hence for anything but degradation and misery.

Mr. S. BOURNE joined in the testimony of praise to Mr. Price Williams for his valuable paper, in which he thought the most



attractive feature was that which related to the future population; he could not but think that the rate of increase would be greater and not smaller in the future. Half a century hence they might look for quite double the present population of the United Kingdom, and his own opinion was that supposing no checks were provided, they would be double the number in thirty-three and a-half years. He believed that such a regulation of increase as that to which Mr. Walford referred, was quite contrary to the dictates of nature and prudence. What he would recommend was, that an outlet should be found for the surplus population, and he could hardly think it at all reasonable that we should be crowded here whilst we have such magnificent countries in our own possession only as yet partially developed. We have splendid food-producing countries under our sway, and the remedy for over-population was to facilitate the transfer of population to those places where every increase of family is an increase of wealth. That he believed to be the design of Providence—for we have had provided for us the means of proper sustenance, enjoyment, happiness, and peace, if we will only be wise enough to avail ourselves of them. The Americans were more enlightened than we were, and were gradually going from the seaboard to the far west, as the seaboard got too full, and it should be our aim to develop Canada, Australia, and New Zealand, not only because of reducing the population at home, but because it would give us important countries upon which to rely for our food supplies, as well as markets for our manufactures. This was not only a question of sustenance, but of morals, happiness, and peace, for people were herding here in barbarism, degradation, and crime, when pure air, sunshine, and splendid regions were waiting for them; here they were a source of expense—there they would be a source of wealth.

Mr. JOHN B. MARTIN rose with diffidence to address a meeting of experts upon the valuable paper which had been read, and the supplementary paper by Sir Rawson Rawson. The Society could appreciate the difficulties of dealing with the so-called official returns of early periods, and could therefore sympathise with the reader in being criticised on the one hand for basing deductions on untrustworthy figures as regarded the early census returns, and on the other for dismissing them in too summary a manner. He would merely call attention to two points, first that every census would probably have fewer numerical omissions than the preceding one, and this would affect the apparent percentage of increase; and next, that while there was some attempt at recording the emigration from our seaports, no account was taken of the ebb and flow of emigration and immigration across the channel, whereby our chief commercial cities, and notably London, were filled with foreigners, who displaced the native population, and very seriously affected the apparent natural increment. This was a subject that deserved careful observation.

Mr. PRICE WILLIAMS having referred to the diagrams exhibited, replied to some points raised, and especially drew attention to the

remarkable effect of the continued decrease in the population of Ireland upon the rates of increase of the entire population of the United Kingdom. As to the improvement in the census taking between 1811 and 1821 accounting for the very large amount of increase in that particular decade, he thought that assumption was discredited by the figures being put graphically on the diagram, as had there been an error due to an inaccuracy of that kind, it would be apparent at once on the diagram. The cessation of war, the introduction of machinery, and the cheapening of food, no doubt had a great deal to do with the increment between 1841 and 1851, when all the great centres were opened up by means of railways. He had great diffidence in offering further observations as to his theory of a decremental rate, but he could not help thinking with Sir George Airey, that the theory would prove to be correct. He thanked the meeting deeply and earnestly for their appreciation of his contribution on this important subject.

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MORTALITY *in* REMOTE CORNERS *of the* WORLD.*By* HARALD WESTERGAARD, *of* Copenhagen.\*

## CONTENTS :

	PAGE		PAGE
I.—The Faroe Islands .....	509	II.—Greenland .....	514

ALTHOUGH Denmark is one of the smallest kingdoms in Europe, it can furnish the statist with materials for many interesting investigations. In our levelling and equalising century, there are few countries where the different classes of population are still so distinct, and especially if we go to the distant islands in the Atlantic Ocean—the Faroe Islands and Iceland—we find the original Scandinavian type, speaking the same language as their ancestors did a thousand years ago, dialects of the old northern language. If we go still farther away, we find in Danish Greenland a quite different race of men—the Eskimo—leading very much the same life now as they did ages before. I hope, therefore, that some interest may attach to the following communication, for the materials of which I am indebted to the directors of the statistical office and the Royal Greenland Board of Trade.

1. *The Faroe Islands*.—This group of islands is situated north of Scotland between the 61st and 62nd degrees of latitude. There are twenty-two islands altogether, with an area of about 500 square English miles, but only seventeen are inhabited. They are very rocky, and the shores are very steep and almost inaccessible. The climate, under the influence of the Gulf Stream, is comparatively mild, with foggy air, changeable weather, mild winters, but cold and wet summers. There are no forests, but a great quantity of peat, which is used as fuel; barley scarcely ripens, but the grass is excellent, and sheep farming one of the chief occupations. Bird catching, whaling, and fishing are also important, and the chief articles of export are wool, train oil, and dried fish. The inhabitants (in 1870, about 10,000) are of Norwegian origin, tall, handsome, healthy people, from childhood accustomed to the dangerous life on the rocks and on the sea, boats being almost as necessary to the

\* The above paper was written in English by the author—an official of the Government Life Office in Copenhagen. It will form part of a work by Herr Westergaard, intended to contain a complete investigation into the causes of mortality. The author would feel indebted to statist, health officers, or others who would draw his attention to periodicals, reports, pamphlets, or other publications concerning mortality which would otherwise be likely to escape his notice.

Faroe islanders, as horses to the Indians in North America. They are poor but intelligent, frugal and temperate, and the comparatively small number of illegitimate children, speaks favourably for their morality.

Of the 9,992 persons enumerated in 1870, only 64 were born out of the islands; about 3,000 persons had their subsistence from the sea, and about 5,000 from agriculture. The females are in excess as usual, and there is a considerable number of old people. Among the males, 9 per cent. were above 60 years of age, and 4 above 70; while among the females, the proportions were 11 and 5·5 per cent. The population is at present rapidly increasing, and would double itself in seventy years.

The three last censuses took place on the 1st of October, 1855, 1860, and 1870. If we call the results  $a$ ,  $b$ , and  $c$ ,  $2a + 8b + 10c$  will approximately be the number of years of life during the twenty years 1855-74; this formula has been constantly used in calculating the different probabilities.

The marriage-rate is rather low (6·7 yearly to 1,000 inhabitants), which is readily explained when we remember the great number of old people.\* The birth and death-rates are also very low. The numbers of births and deaths, including stillborn, were 5,379 and 3,229, making a proportion of 285 and 171 to 10,000. Excluding the stillborn, we get 276 and 162, thus realising Dr. Farr's ideal of a healthy district. The female births have been slightly in excess. The proportion of stillborn to all the births has been 0·034, which is a little less than in most northern countries except Sweden, but it is a well known fact, that the statistics of the stillborn are always a little unreliable. While in Denmark the illegitimate children make 11 per cent. of the births, in Faroe they are only 3 per cent.

The illegitimate children seem also to be well treated, for the mortality does not seem very different from that of the legitimate ones, and only the stillborn seem to be in greater proportion. The difference is great enough, according to the calculus of probabilities, to indicate that there is a cause acting here, though the numbers are so small, that the true proportion cannot be stated with any security.

To compare the mortality in the Faroe Islands with that in Denmark, I have calculated the number of persons who would have died if the mortality had been the same as in Denmark in 1860-69. I have chosen one general table for the whole kingdom, and another for the rural districts only, which are almost without exception agricultural districts. Unfortunately the Danish life tables have

\* For comparisons, I may refer to the Annual Reports of the Registrar-General for England, and to the "*Movimento dello Stato Civile, anni dal 1862 al 1877.*" Introduzione. Roma, 1878.



not been adjusted, which makes them irregular; but the chief figures of the tables are undoubtedly correct. The results will be seen from the following abstract:—

Age.	Males.			Females.		
	Actual Deaths,* 1855-74.	Calculated Deaths, according to Mortality, 1860-69.		Actual Deaths,* 1855-74.	Calculated Deaths, according to Mortality, 1860-69.	
		All Denmark.	Rural Districts.		All Denmark.	Rural Districts.
0 .....	399	794·17	734·05	371	720·34	671·71
15 .....	414	313·67	280·66	261	343·84	341·74
45 .....	297	332·24	294·85	190	262·46	252·74
65 .....	553	590·81	576·10	562	723·42	720·68
All ages....	1,663	2031·00	1886·00	1,384	2050·00	1987·00

\* The stillborn excluded.

Before proceeding to interpret the above abstract, I may add that Denmark is one of the healthiest countries in Europe. Among the females we notice in the Faroe Islands an immense saving of lives; in every stage of life we see the most striking difference, especially among the children, and we understand well why there are so many old women on these islands, as a much greater proportion of the new born outlive infancy and childhood than in most other places.

Among the males, we find in childhood and old age the same striking difference in favour of the Faroe islanders; but between 15 and 65, especially between 15 and 45, this is not the case. Unfortunately the causes of deaths are not specified in the lists I have before me; only the violent deaths have been registered there. Out of 3,047 deaths (excluding stillborn), 255 were violent. Besides 4 suicides among males and 12 violent deaths among females, 180 drownings, and 59 other accidents among males have been registered, being *one out of seven*, and probably by far the greater proportion of all these accidents may be allotted to the vigorous age between 15 and 65, or even 15 and 45, so that perhaps more than 1 in 3 or 4 in these ages, die what our ancestors deemed an honest death, though it was not deemed so honest to be killed in war with the elements, as with human beings. If we strike off the total number of deaths by accident, we have only 1,424 deaths left, and if we ascribe all the violent deaths to the ages between 15 and 65, we find that whereas the calculated number for Denmark was 646, and for the rural districts only 576, the actual number of deaths has been 472 only. It is thus justifiable to presume, that

the Faroe islanders are much healthier than Danes generally, and if it were not for the accidental deaths, the mortality in every stage of life would be less than in other parts of Denmark.

In order to estimate the infant mortality, we may, as usual, compare the number of births to the number of deaths. The continental authors are frequently puzzled by this question, and very often take a wrong denominator, &c.; but if we support logic by mathematics, the question presents no difficulty, and no English author would probably be in any doubt as to how to calculate the probabilities.

*Infant Mortality in Faroe, 1855-76, compared to that in Denmark,  
1860-69.*

Out of 10,000 New Born, there Died within	Males.			Females.		
	Faroe.	Denmark.		Faroe.	Denmark.	
		Whole Kingdom.	Rural Districts.		Whole Kingdom.	Rural Districts.
First year of life .....	862	1,454	1,321	698	1,237	1,114
„ five years.....	1,216	2,327	2,151	1,171	2,123	1,961

The following table shows the infant mortality in other countries (“Movimento,” &c., pp. clxxvii, &c.).

Out of 10,000 New Born there Died within	England and Wales.	Norway.	Sweden.	Prussia.	Austria.	Bavaria.	Italy.	France.
First year of life ....	1,540	1,063	1,371	2,177	2,582	3,179	2,201	1,691
„ five years.....	2,535	1,800	2,227	3,343	3,998	3,980	3,954	2,497

Norway has always been distinguished as one of the healthiest countries, and especially its low infant mortality has been frequently noted; but even there the mortality is higher than in Faroe.

For the remaining ages we may calculate the rates of mortality in the usual way, by dividing the number of deaths by the years of life. After having adjusted the number of living and dead by assuming the second differences constant, we get the following table. The numbers for England are taken from the “Fortieth Annual Report of the Registrar-General” (Abstract of 1877).

*Rates of Mortality per Ten Thousand.*

Ages.	Males.				Females.			
	Faroe, 1855-74.	Denmark, 1860-69.		England, 1838-77.	Faroe, 1855-74.	Denmark, 1860-69.		England, 1838-77.
		Whole Kingdom.	Rural Districts.			Whole Kingdom.	Rural Districts.	
5.....	41	105	105	84	50	109	111	82
10.....	44	57	60	47	35	66	71	48
15.....	66	52	53	76	38	60	63	78
20.....	96	77	70		48	70	70	
25.....	106	74	66	98	60	79	78	99
30.....	112	75	66		74	88	88	
35.....	120	85	73	132	82	97	95	123
40.....	127	115	96		79	106	101	
45.....	177	142	119	187	88	111	104	156
50.....	177	187	163		108	138	132	
55.....	222	248	222	324	134	186	179	281
60.....	318	396	367		215	303	298	
65.....	463	513	484	674	366	427	426	591
70.....	661	797	778		542	724	717	
75.....	976	1,096	1,071	1,470	746	1,010	1,011	1,340
80.....	1,503	1,845	1,826		1,047	1,681	1,663	
85.....	2,495	2,938	2,918	3,054	1,546	2,495	2,532	2,791
90—95....	—	3,580	3,608		2,407	3,350	3,302	

On inspection of this table, we meet just the same features as above; an exceedingly low mortality among the females and also among the males under 15 and above 65, while between 20 and 50 it is considerably high; and the usual higher mortality of the women in the child-bearing ages does not appear here.

In conclusion, a few numbers may be added to illustrate the influence of season on mortality:—

*Influence of Seasons on Mortality; Proportional Number of Deaths; in the Average Quarter the Number Assumed to be One Thousand.*

	First Quarter, ending 31st March.	Second Quarter, ending 30th June.	Third Quarter, ending 30th September.	Fourth Quarter, ending 31st December.
England and Wales, } 1838-77 .....	1,113	988	920	978
Faroe—				
Excluding violent } deaths .....	1,011	1,143	908	937
Including violent } deaths .....	987	1,173	927	913

The spring quarter is, then, most perilous, especially if we include violent deaths.

2. *Greenland*.—West and north-west of Faroe we find the immense arctic country Greenland. The present Danish stations there date from the time of Hans Egede, an energetic missionary, who in 1721 came to Greenland with his wife and children, to seek for the posterity of the old Norse settlers. Finding only Eskimos, he devoted himself to the difficult task of Christianising them, and after some years of hard struggle, he succeeded in getting assistance from the Danish Government. In 1774 a royal trade monopoly was established, which is still maintained, and seems to be less perilous to the natives than free trade or private monopoly.

Although there is a great deal of European blood now in the inhabitants, the Eskimo features are still prevalent, viz., the low stature, the brown complexion, and the coarse black hair. Domestic life is almost unaltered since the time of Egede, and although the royal trade requires the assistance of a certain number of natives, the bulk of the inhabitants are still pursuing their national occupations. Fishing and hunting are still the chief sources of life in this desolate arctic country with its barren, infertile soil, and its rough and changeable weather. For full information as to this remarkable race, which maintains life where no other race has been able to live, I may refer to Dr. Henry Rink's interesting work, "*Danish Greenland*," London, 1877.

The materials for the following investigation are the census reports and the yearly reports sent to the Board of Trade, containing the numbers of native inhabitants in each district, of births, deaths, and (sometimes) of marriages, of immigration and emigration. The ages at death are not given, but the causes of death are specified. These materials are not very complete, but though they are insufficient for any actuarial purpose, many conclusions concerning social questions may be safely drawn from them. The causes of death cannot of course be well specified; headache, stitch, and dropsy, &c., are frequently named as causes of death. There is also reason to believe that infants are not always registered when they die shortly after birth, and in North Greenland the stillborn are never included, neither in births nor in deaths. Still the lists are very carefully filled up, and their close conformity with the census reports tends to show this fully. Unfortunately only a few lists can be found, and I have no more than twelve years' experience for North Greenland, and eleven for South Greenland.

It would be interesting too, to ascertain the mortality of the Europeans who live in Greenland, but I have no materials for such an investigation.

Before the middle of this century, the population seems to have been rapidly increasing for a while, but now the number is nearly the same from year to year.



In 1834 there were 196 Europeans and 7,356 natives					
"	'40	"	251	"	7,877
"	'45	"	234	"	8,501
"	'55	"	248	"	9,648
"	'60	"	232	"	9,648
"	'70	"	239	"	9,586

The natives live—*mutatis mutandis*—under the same conditions as our ancestors two hundred years ago; if a series of years set in with epidemics and scarcity, the increase is checked, and the births cannot keep up with the deaths. In Denmark the population six hundred years ago is said to have been just as great as in the beginning of this century, and it is only the present civilisation that has taught us the art of saving life and of doubling the population by adding a number regularly every year.

Immigrations from the Danish possessions, or from other countries, are rare; and although the natives are a migrating people, the migrations seem to take place mostly within their own borders. Sometimes a few Eskimos come from other arctic countries (for instance from the east coast, where there are no European stations), but on the whole the increase and decrease of the population are dependent on births and deaths. During all the years for which I have got reports, the excess of immigrants over emigrants has only been fourteen persons.

In 1870 the population was distributed among 176 winter stations. The number of males was 4,484, and of women 5,102, this difference arising mostly from the dangerous occupations of the men. The number of males aged 60 and more did not amount to *two per cent.* of the male population; among the females the proportion was *between two and three per cent.*

The marriages have been sometimes registered in South Greenland, giving very nearly a marriage-rate of 1 per cent. of the population; the birth-rate was about 3·8 per cent. (excluding the stillborn), and the death-rate 3·7 per cent. There has thus been a slight difference in favour of births, the total number of births (exclusive of stillborn) being 4,107, and of deaths 4,027. There is nothing extraordinary in these proportions, though they may be uncommon in northern countries.

The years for which I have reports, go from 1865 to 1878 (with some omissions, making twelve years for the northern districts and eleven for the southern ones). If we assume the same distribution of ages every year as in the census year 1870, and if we calculate, on this supposition, the number of deaths which would have taken place according to the mortality in Denmark, 1860-69, we get the following results. In North Greenland the calculated number of deaths was 794, while the actual number was 1,483; and in South

Greenland the calculated number was 934, but there died 2,544. Thus the mortality is more than *double of that in Denmark*. If we inspect the single years, we find that the mortality is constantly higher than in Denmark, but the fluctuations in mortality are very great. The domestic life of the Greenlander, the miserable, overcrowded, filthy huts, the want of linen, and the improvidence of the natives—all the causes, in short, which in past centuries constantly raised the mortality in every European city—are still acting here. In 1867 pleurisy took 257 lives, being half of all the deaths that year; during the two years 1875-76, erysipelas killed 180 natives, and so on. Every year a number of people die from want of cleanliness and of medical assistance, succumbing under nasty sicknesses such as boils, tetter, and itch.

I find the list of causes too incomplete to attempt classifying them; it will only be necessary to show the ravages of one cause, viz., the violent deaths, which sacrificed 466 *human beings out of 4,000 deaths*. Thus we have even a greater proportion of deaths by accident here than in Faroe. Most of the people who perished by accident were probably males. It is a dangerous life the Eskimos lead; the kayak sport is especially perilous, and the drownings in kayak amounted to 270 out of 466 violent deaths.

It may be of interest to compare the theoretical mortality with the actual mortality during all the different years.

Year.	North Greenland.				South Greenland.			
	Actual Deaths.		Calculated Deaths (Mortality in Denmark, 1860-69).		Actual Deaths.*		Calculated Deaths.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1865....	64	41	32·87	32·43	92	84	41·27	44·17
'66....	56	60	32·76	32·67	187	187	41·71	44·57
'67....	126	95	31·61	31·92	129	148	41·23	43·88
'68....	44	45	31·98	32·34	—	—	—	—
'69....	—	—	—	—	106	88	41·50	44·08
'70....	44	46	32·96	33·19	91	79	41·96	44·76
'71....	77	65	32·86	33·22	168	153	41·47	44·23
'72....	88	80	32·50	33·06	—	—	—	—
'73....	41	40	32·97	33·65	132	129	41·05	43·63
'74....	55	46	33·43	34·10	79	83	41·63	43·98
'75....	72	64	33·34	34·15	159	204	40·69	42·59
'76....	85	71	33·13	34·45	159	154	40·01	41·69
'77....	—	—	—	—	—	—	—	—
'78....	42	36	33·31	34·68	89	73	41·43	42·32
Total	794	689	394·00	400·00	2,586 - 42* = 2,544		454·00	480·00

\* In the deaths in South Greenland 42 stillborn are included, for which the sexes cannot be distinguished.

I am well aware that some objections may be made to these computations, but the difference between the calculation and the experience is so great, that a few deaths more or less have no importance.

In which ages do these immense losses of life take place? We cannot ascertain it by the death registers, as these contain no particulars as to the age. The only thing we can do is to use the census reports. It was shown above, that emigration in Danish Greenland is very insignificant. The number of persons aged 40 in 1870, divided by the number of persons aged 30 in 1860, will then be the probability for a man aged 30 to live ten years more. If this probability be  $p$ ,  $\sqrt[10]{p}$  is approximately the probability for a man between 30 and 40 to live one year more. This method would not very well answer for actuarial purposes, but in social statistics we never require great accuracy, and we are often content with a knowledge of plus or minus, when we cannot ascertain the quantities numerically.

After having adjusted the numbers of persons at different ages in the same way as for the Faroe islanders, taking quinquennial ages, 10 to 15, 15 to 20, &c., and calling the probability, found in the way just described, for a person between 20 and 25 to live ten years  $p$ ,  $\sqrt[10]{p}$  may be taken approximately to represent the yearly rate of mortality between 25 and 30. The infancy is more difficult, for we cannot well make any hypothesis on the distribution of the infants at the different ages, without at the same time supposing anything concerning their mortality. And we must finally remember that many children who died in the earliest infancy, have perhaps never been registered. The probabilities must necessarily be most arbitrary, and I have only calculated them in order to have means to calculate the numbers of deaths, and thus test the mortality table by experience. They have been found in comparing the average numbers of births to an interpolated number of living. A few persons have been enumerated without age; these I have left entirely out of consideration.

We thus get the following tables, which I have compared with the Danish mortality table for 1860-69, and also to the mortality table for Copenhagen during the same years, this place being the least healthy among the places in Denmark for which mortality tables have been computed.

*Rates of Mortality per Ten Thousand.*

Ages.	Males.			Females.		
	Natives in Greenland.	Denmark, 1860-69.		Natives in Greenland.	Denmark, 1860-69.	
		Whole Kingdom.	Copenhagen.		Whole Kingdom.	Copenhagen.
0 .....	895	571	969	795	506	859
5 .....	273	105	105	274	109	100
10 .....	206	57	41	130	66	42
15 .....	225	52	51	90	60	53
20 .....	277	77	99	150	70	81
25 .....	308	74	96	195	79	90
30 .....	330	75	117	238	88	96
35 .....	377	85	135	299	97	114
40 .....	445	115	206	317	106	131
45 .....	541	142	265	406	111	147
50 .....	638	187	329	589	138	171
55 .....	782	248	407	735	186	223
60 .....	1,011	396	625	890	303	343
65 .....	1,170	513	718	1,153	427	461
70—75 ....	—	797	970	1,439	724	812

If we first look upon the mortality among males and females in Greenland, it strikes us at once that the mortality among males between 10 and say 50, is very much higher than among females in the corresponding ages. This table gives us a true picture of the hardships which an Eskimo male has to endure, when for instance, the kayaker has to row in a sea with drifting ice, when "the water" in washing over, covers the kayak as well as the clothes of the man "with a crust of ice," or when he is obliged to row against a gale "for several hours without being able to lift his hand in order to shelter his frost-bitten face."\* On the contrary, the women "on growing old, mostly take to in-door life," which, if not causing violent deaths, is certainly not healthy.

Striking as the difference is between male and female mortality in Greenland, it is still more so between the mortality in Greenland and in Denmark. The mortality *two, three, or four times higher than in Denmark!*—the results of many combined causes, most of which seem too closely connected with the conditions under which the natives live, to be altered in a hurry. But there is always much to be done, where the mortality is high, and we may well expect a reduced rate of mortality here from the blessed influence of sanitary improvements. The natives in Greenland are by no means spoiled by their acquaintance with Europeans, as are most other uncivilised races. They are improvident and poor, perhaps also ignorant and thoughtless, but they do not seem to belong to the races that disappear; it is not probable that civilisation will kill them, and we may add, that they are good natured, quick to

\* Dr. Rink's work, pp. 173, 164.



learn, and—what is perhaps more important—they are receptive of religious teaching.

Before leaving this subject, I will try to test the mortality tables by calculating what numbers of deaths would have taken place according to them:—

*North Greenland.*

Years.	Experienced Mortality.*			Calculated Mortality.		
	Males.	Females.	Both Sexes.	Males.	Females.	Both Sexes.
1865 ....	64	41	105	81·69	70·47	152·16
'66 ....	56	60	116	81·40	70·99	152·39
'67 ....	126	95	221	78·56	69·35	147·91
'68 ....	44	45	89	79·48	70·26	149·74
'69 ....	—	—	—	—	—	—
'70 ....	44	46	90	81·90	72·11	154·01
'71 ....	77	65	142	81·65	72·18	153·83
'72 ....	88	80	168	80·78	71·83	152·61
'73 ....	41	40	81	81·94	73·12	155·06
'74 ....	55	46	101	83·07	74·10	157·17
'75 ....	72	64	136	82·86	74·20	157·06
'76 ....	85	71	156	82·32	74·86	157·18
'77 ....	—	—	—	—	—	—
'78 ....	42	36	78	82·78	73·55	156·33
Total ....	794	689	1,483	978·00	867·00	1845·00

\* Stillborn excluded.

This table shows a more favourable condition in the northern parts of Greenland than we expected; just the opposite is the case for South Greenland, which will be seen from the following table:—

*South Greenland.*

Years.	Experienced Mortality.*			Calculated Mortality.		
	Males.	Females.	Both Sexes.	Males.	Females.	Both Sexes.
1865 ....	92	84	176	103·12	97·35	200·47
'66 ....	—	—	187	104·24	98·22	202·46
'67 ....	129†	148†	277†	103·04	96·70	199·74
'68 ....	—	—	—	—	—	—
'69 ....	106	88	194	103·70	97·16	200·86
'70 ....	91	79	170	104·86	98·64	203·50
'71 ....	168	153	321	103·62	97·48	201·10
'72 ....	—	—	—	—	—	—
'73 ....	132	129	261	102·58	96·15	198·73
'74 ....	79	83	162	104·03	96·93	200·96
'75 ....	159	204	363	101·67	93·86	195·53
'76 ....	159	154	313	99·98	91·88	191·86
'77 ....	—	—	—	—	—	—
'78 ....	89	73	162	103·53	93·27	196·80
Total ....	—	—	2,586	1134·00	1058·00	2192·00

\* Including 42 stillborn.

† This year there seems to have been some inaccuracies in the reports, especially as regards infant mortality.

Thus the calculated mortality has been 2,192, the experienced 2,586, from which we have to subtract 42 stillborn; but there is still a considerable difference left. Altogether in North and South Greenland combined, the theoretical number of deaths has been 4,037, while the real number of deaths was (excluding the still-born) 4,027. There is thus a very good accordance with facts, but this accordance cannot of course take place for every year on account of the great fluctuations in mortality. If we leave out of consideration the year 1866 as regards South Greenland, and assume that about half of the stillborn have been boys, we find the following results:—

	Males.		Females.		Both Sexes.	
	Experience.	Theory.	Experience.	Theory.	Experience.	Theory.
North Greenland .....	794	978	689	867	1,483	1,845
South     "     .....	1,185	1,030	1,177	959	2,362	1,989
Total .....	1,979	2,008	1,866	1,826	3,845	3,834

Thus we see, that while in the totals there is more conformity with facts than might be expected by such a rough method and such fluctuating mortality, in South Greenland the real numbers of deaths are in excess of the calculated numbers, and *vice versâ* in North Greenland. Thus it seems that the inhabitants of the northern districts live under better conditions than in South Greenland, whatever the reason may be. In North Greenland, therefore, the births can keep pace with the mortality, which of late years has not been the case in the southern districts.

As to the influence of season, Dr. Rink gives the following interesting scheme, based on twenty-six years' experience in the southern stations:—

Season.	Supply of Food and Mode of Life.	Months.	Per Cent. of the Number of Deaths.
Winter ..	Seals decreasing; fish are had recourse to instead of flesh; occasional want of food; staying in the winter huts; diarrhœa being the chief sickness .....	December	7·5
		January ....	6·1
		February ..	5·6
		March ....	6·1
Spring ....	Want of food rarely occurring; partly favourable catch of seals and fatter kinds of fish; removing from houses to tents....	April .....	4·6
		May .....	5·4
Summer .	Seal hunt increasing; want of food never occurring; travelling and dwelling in tents .....	June .....	7·1
		July .....	7·6
		August ....	11·8
Autumn.	The chief seal hunting season; frequent intemperance in fat animal food and berries; removing from tents to houses; the prevailing complaints being inflammation of the chest, with stitch, influenza, and obstructions .....	September	11·7
		October ....	13·3
		November	13·2

## MISCELLANEA.

## CONTENTS :

	PAGE		PAGE
I.—Ten Years' Railway Statistics .....	521	III.—Notes on some Additions to the Library .....	547
II.—Notes on Economical and Statistical Works .....	531	IV.—List of Additions to the Library .....	548

I.—*Ten Years' Railway Statistics.*

In their report to the Board of Trade on the capital traffic and working expenses of railways in 1879,\* Mr. Calcraft, the Assistant Secretary, Railway Department, and Mr. Giffen, Chief of the Statistical Department, give the following review of railway progress in the last ten years :—

*Ten Years' Increase of Mileage, Capital, Traffic, Working Expenses, and Net Earnings compared.*

“Looking back for ten years, as we proposed to do at the outset, it will be useful to bring together at starting a comparison of the principal features of the railway system, and see at a glance what the relative progress has been. The broad facts are (1) an increase of mileage between 1869 and 1879 from 15,145 to 17,696 miles, or about 17 per cent.; (2) an increase of capital from 518,779,000*l.* to 717,003,000*l.*, or about 38 per cent.; (3) an increase of gross receipts from 42,696,000*l.* to 61,776,000*l.*, or 45 per cent., the increase of receipts from railway traffic proper, excluding ‘Miscellaneous,’ being from 41,075,000*l.* to 59,395,000*l.*, or 44½ per cent.; (4) an increase from 20,780,000*l.* to 32,045,000*l.*, or 54 per cent. in the total working expenditure, the increase in the railway working expenditure only, exclusive of certain miscellaneous items, being from 20,263,000*l.* to 31,050,000*l.*, or 53 per cent.; and (5) an increase of total net receipts from 21,916,000*l.* to 29,731,000*l.*, or 36 per cent., and of the net receipts from railway working only from 20,812,000*l.* to 28,345,000*l.*, or also 36 per cent.; the proportion of the former to the whole capital falling from 4·22 to 4·15, and of the latter from 4·01 to 3·95. It appears on the face of these facts that the increase of mileage is much less than the increase of capital, which would imply, making all allowance for the nominal increase of capital by conversion operations, a constant expenditure of capital on lines open for traffic; but at the same time that the increase of receipts is much greater than the increase of capital, being no less than 45 per cent., as compared with an increase of 38 per cent. only in the capital. The final result is, that in spite of this large increase of capital, and also of the still larger proportionate increase of working expenditure, amounting to 54 per cent., the return per cent. on the increased capital is just about as great in 1879 as the return on the smaller capital in 1869. Railway shareholders are on the average no worse on the face of the figures than

\* C-2641. Sess. 1880.

they were in 1869, while the figures themselves, allowing for the increase of nominal capital only, and for the circumstance of trade having begun to revive from a previous depression in 1868, while 1879 was the lowest point of the depression, may be held to denote a real improvement.

“For the sake of reference we subjoin a brief summary bringing out these points in much the same form as the summary, comparing 1879 and 1878 only:—\*

*Summary of the Mileage, Capital, Traffic Receipts, Working Expenses, and Net Earnings of the Railways of the United Kingdom in 1879 and 1869 compared.*

	1879.	1869.	Increase in 1879.		Decrease in 1879.	
			Amount.	Per Cent.	Amount.	Per Cent.
Mileage .....	17,696	15,145	2,551	17	—	—
Capital .....	£ 717,003,000	£ 518,779,000	£ 198,224,000	38	£ —	—
Gross receipts, including miscellaneous .....	61,776,000	42,696,000	19,080,000	45	—	—
Traffic receipts only .....	59,395,000	41,075,000	18,320,000	44½	—	—
Working expenses, including miscellaneous .....	32,045,000	20,780,000	11,265,000	54	—	—
Railway working expenses only .....	31,050,000	20,263,000	10,787,000	53	—	—
Net earnings—						
(a) Including miscellaneous .....	29,731,000	21,916,000	7,815,000	36	—	—
(b) Excluding „ .....	28,345,000	20,812,000	7,533,000	36	—	—
Proportion to total capital of net earnings (a) .....	4·15	4·22	—	—	0·07	1·7
„ (b) .....	3·95	4·01	—	—	0·06	1·5

*“Capital and Mileage.*

“Analysing in more detail the particulars of the above progress, we have first to notice with regard to capital and mileage the growing increase of the capital expended per mile of railway open. This is implied in the more rapid increase of capital than of mileage, but it seems nevertheless useful to state the fact directly as is done in the following brief table:—

Years.	Capital per Mile of Railway Open.
1870 .....	£34,106
'71 .....	35,943
'72 .....	35,984
'73 .....	36,574
'74 .....	37,078
'75 .....	37,833
'76 .....	39,012
'77 .....	39,472
'78 .....	40,301
'79 .....	40,518

\* Given in an earlier part of the report.



“As we have remarked above these figures must be qualified to some extent by the fact that part of the increase of capital is an increase of nominal capital only. Still no qualification of this sort will alter the fact that the chief expenditure of new capital by the different companies has been on lines already constructed. A certain part of the increase of mileage is also in double miles. It is not possible to give an exact figure for comparison in 1869, but since 1871 the increase of double miles only is about 1,330, as compared with a total increase of mileage amounting to 2,320. The proportion of double or more miles in the whole system is thus steadily increasing, and other things being equal, this is an obvious reason for the capital expenditure per mile open being greater than it was.

“The second point we have to notice in connection with the capital and mileage is the steady diminution of the proportion of ordinary capital to the total capital of the railway companies, and the increase of the guaranteed and preferential capital. This is brought out clearly by the second table in the Appendix, to which reference may here be made. This shows that while the ordinary capital in 1869 was 226,788,000*l.*, or 44 per cent. of the then total of 518,779,000*l.*, in 1879 it was only 266,915,000*l.*, or 37 per cent. of the increased total of 717,003,000*l.* During the same period, the guaranteed and preferential capital increased from 155,758,000*l.*, or 30 per cent. of the total in 1869 to 270,719,000*l.*, or 38 per cent. of the total in 1879, the proportion of the loans and debenture stock remaining comparatively stationary. The meaning of this is, that the proportion of capital interested in the varying fortunes of the railway companies has become smaller and smaller, and as it has suffered more in times of depression than if the proportion had remained the same, so it will gain more in times of prosperity. The rate of increase of profit when times are good should be greater than it would otherwise be, just as the rate of decrease in bad times, though not large, has been greater than it would otherwise have been.

#### “*Traffic Receipts.*”

“Coming to the traffic receipts, and looking to the facts for the last ten years, the first point to notice appears to be the steadiness of the proportion between passengers and goods receipts. This appears very clearly from Table No. 7, Part II, which shows that in 1869 the receipts from passenger trains were 46 per cent., and the receipts from goods trains 54 per cent. of the total, but in 1870 these proportions became 44 and 56 per cent. respectively, at which figure they have remained constant, with the exception of the year 1873, when they were 43 and 57 per cent. The proportions for the United Kingdom are also nearly the same all through as those for England alone. In Scotland, also, though the proportion of passenger receipts is much lower than the average of the United Kingdom, being from 37 to 40 per cent. only, there is little change all through; but in Ireland, though the proportion of passenger receipts is still higher than the average for the United Kingdom, it has fallen from 59 per cent. in 1869 to 53 per cent. in 1879.

The amount of the Irish traffic is, however, too small to make this change in the proportions affect materially the proportions of the United Kingdom.

“Of course, an account like this does not show how far the proportions between the receipts from passengers and goods has been preserved by changes in the rates from time to time, but such changes, especially the increase and then the decrease, in the rates chargeable for goods on some of the leading railways during the period in question, have probably contributed to the result stated. Statistically, the figure is an interesting one, however it may be explained, and it remains to be seen whether the proportions will vary or remain the same during the next few years.

“As regards the passenger traffic only, the one important fact seems to be the enormous increase of third class traffic, while first and second class remain stationary or decline. We have frequently drawn attention to this during the last two or three years, but the figures are perhaps even more striking than any we have yet had to notice, when we review a period of ten years, as is done in Table No. 7, Part I. This table shows that while the receipts from first class passengers in 1869 were 3,868,000*l.*, and the highest amount received in any one year since then was 4,725,000*l.* in 1875, there has since been a steady decline from the latter figure to 3,888,000*l.*, or little more than the total for 1869. While the receipts from second class passengers again were 4,878,000*l.* in 1869, and the highest amount received in any one year since then was 4,925,000*l.* in 1870, there has since been a decline to 3,459,000*l.* only in 1879. On the other hand, the receipts from third class passengers, which were 6,837,000*l.* in 1869, increased rapidly to over 10,000,000*l.* in 1872, and after increasing uniformly, though more slowly, to 14,246,000*l.* in 1878, declined fractionally in 1879 to 13,869,000*l.*, which amount, however, is still more than twice the figure for 1869. For good or for evil, therefore, and apart from any explanation of the causes, the tendency of third class traffic to increase while first and second class traffic remains stationary or declines, has been most distinctly marked during the last ten years. The *increase* in third class traffic alone in that period is, in fact, nearly equal to the total amount still received from first and second class traffic together. The proportions would perhaps be altered slightly by distributing the receipts from holders of season and periodical tickets among the different classes, but they could not be materially altered, the total increase of receipts from this class of traffic being from 631,000*l.* to 1,364,000*l.*, or 733,000*l.* only. In proportion, this is an immense increase, quite equal to that of third class traffic itself, but the amount is too small to throw out the general proportions stated, however it may be distributed among the other classes.

“According to Table No. 9, it would appear that the increase of passenger journeys has corresponded very nearly in the third class to the increase of receipts; but in the first class there is an increase between 1869 and 1879, coupled, as we have seen, with practically stationary receipts. Since 1875, however, the decline in first class passenger journeys corresponds in some degree, though not com-

pletely, to the decline in receipts. We content ourselves, however, with a mere reference to the table as corroborating the figures respecting the receipts which we have discussed, and which tell their own tale with sufficient clearness.

“As regards the receipts from goods, the important fact appears to be the greater proportionate increase of the receipts from minerals compared with those from other descriptions of goods traffic. The comparison is as follows for 1879 and 1869:—

*Receipts from Goods Traffic in 1879 and 1869 compared.\**

	1879.	1869.	Increase.	
			Amount.	Per Cent.
	£	£	£	
Minerals .....	13,655,000	8,388,000	5,267,000	63
General merchandise .....	18,674,000	12,969,000	5,705,000	44
Live stock.....	1,142,000	886,000	256,000	29
Total .....	33,471,000	22,243,000	11,228,000	50½

“Thus the increase in minerals in the ten years is 63 per cent., in general merchandise 44 per cent., and in live stock only 29 per cent. The increase in all classes of traffic has also been comparatively steady from year to year, the exceptions being a decline in minerals and general merchandise between 1877 and 1878, and a decline in live stock between 1878 and 1879.

“The figures are necessarily too imperfect to show whether the increase of the goods conveyed is or is not in proportion to the increase of receipts, the amounts of minerals and general merchandise respectively not being even approximately known till 1872, while we are still without information as to the number of tons carried one mile. Since 1872 the numbers of tons of minerals and tons of general merchandise conveyed have increased, the former at the rate of 19 per cent. and the latter 13 per cent., while the receipts from minerals have increased 22 per cent., and from general merchandise only 12 per cent., which would go so far to indicate that it is mineral traffic which has brought most additional profit. But without knowing the tons conveyed one mile we can only put this forward as an indication. It would appear, moreover, that the receipts per goods train mile generally show an increase from 70·16*d.* in 1869 to 73·85*d.* in 1879, the total of 79·09*d.* having been touched in 1873, though it does not appear whether the average is brought up by the receipts from mineral or general merchandise trains.

#### “Working Expenses.

“This is perhaps the most interesting question to the railway shareholder. As we have seen, on a broad view of the subject, the percentage of the increase of working expenditure in the period

\* Excluding receipts not classified.



under review has been much greater than the percentage of the increase of gross receipts, and this has sufficed, along with an increase of the capital outlay, to keep down the net return on the capital invested. It will be useful, therefore, to examine more minutely what have been the causes of the increase, and what has been the more recent progress in the matter.

“The first suggestion is that the disproportionate increase of working expenses may be due to a change in the manner of working, by which a larger gross income is earned but at a larger expense permanently, so that the net earnings do not increase proportionately. But this suggestion appears to be inconsistent with the facts to which attention has already been drawn, that the increase of passenger journeys and of goods conveyed corresponds pretty closely with the increase of receipts from these sources of traffic. The suggestion seems also inconsistent with the progress of the receipts per train mile from traffic, as shown in Table 10 of the Appendix. This shows that from passenger trains in 1869 the receipts per train mile were 55·68*d.*, and in 1870 they were 53·46*d.*, while the highest amount since received was in 1874, when the figure was 60·72*d.*, and the lowest was last year when the figure was 53·35*d.*, or about the same as 1870, the receipts in all the other years having been higher than in 1869. It cannot be said then as regards passenger trains that there has been any change in the system of working to cause an increase in the proportion of expenses to traffic receipts. There are fluctuations in particular years, the receipts per train mile rising in years when business increases, especially when it increases quickly, and falling in years like the last two when there is a sudden falling off, but one year with another there is no increase in the number of trains run in proportion to the receipts. As regards goods trains, again, the figures are rather such as would lead us to expect a diminution of the proportion of expenses to traffic receipts. The income per goods train mile in 1869 was 70·16*d.*, and in 1870 it was 70·20*d.*, while in 1879 it was 73·85*d.*; the highest figure touched in any intermediate year, viz., 1873, having been 76·09*d.* Putting passengers and goods trains together there is also progress. The average income per train mile from all trains having been 62·58*d.* in 1869 and 61·63*d.* in 1870, was 63·12*d.* in 1879, showing a moderate improvement, while still higher figures have been touched in the interval. The railway companies all round are consequently doing less work than they did for the same income, and if working expenses have increased, the reason apparently must be that the same quantity of work is more costly.

“This diminution of the work done for the same money is also what might be expected from a railway system like that of the United Kingdom which has been long established, and where an increase of business ought to be largely a pure addition to profit. It is the last additions to the volume of transactions in any business which make the profit; and as the railway companies in the period under review have been mainly developing their old lines of traffic rather than opening new mileage, the circumstances have all been favourable to their receiving, one year with another,



and allowing for the usual fluctuations between years of prosperity and adversity, an increasing income without a proportionate addition to the work they do for it. The conclusion we have already drawn, therefore, as to the probable cause of the increase of working expenses, is supported by a general view of the position of the railway system in an old country like England.

“ We find, in fact, on examination, that the increase of working expenses is accounted for by an increase of the expenditure per train mile, although the number of train miles run, judging by the gross receipts per mile, has only increased in proportion to the increase of receipts. In 1869 the expenditure per train mile was 30·87*d.*, and in 1870 it was 30·09*d.*, while in 1879 notwithstanding a decrease from the high figure of 37·88*d.* touched in 1874, it was still 33*d.* This is an addition of rather more than 2*d.* to the cost of doing the same work in 1879, as compared with 1869, and of nearly 3*d.* as compared with 1870; and the difference to railway shareholders is necessarily very great, as 1*d.* per train mile now amounts to about 1,000,000*l.* per annum on all the railways of the United Kingdom.\* Accordingly, deducting 2,000,000*l.* for the additional 2*d.* per train mile from the increased working expenses between 1869 and 1879 above shown, the remaining increase, amounting to 9,000,000*l.* would only come to about 43 per cent. on the working expenses of 1869, showing about the same proportion of increase as the increase of gross receipts. In this way it is clearly brought out that the additional 2*d.* is additional expenditure for doing the same work, whereas the circumstances have been such, apart from special causes connected with the expenditure itself, when a larger quantity of work might have been expected to be done at a less proportionate cost.

“ The same conclusion is apparent if we look at the proportion of expenses to working receipts. If our view is right a certain tendency in this proportion to diminish ought to be apparent, in circumstances like those of the last ten years, when the receipts per train mile have rather increased than otherwise, and when the railway companies ought to be making additional profit from the additional volume of their transactions. But while in 1869 the proportion of expenses was 49·3 per cent. and in 1870 it was 48·8 per cent., in 1879, although there has been a fall from the figure of 55·6, since touched (in 1874), the proportion was still 52·3 per cent. Each 1 per cent. on the present amount of railway traffic being equal to about 600,000*l.*, the increase of three points in the percentage between 1869 and 1879 is quite sufficient to account for the greater proportionate increase of expenses than of receipts between 1869 and 1879. The sole cause is manifestly a larger outlay by the different companies for having the same work done.

“ Analysing the increase of cost in detail, according to the classification of the items of cost in the Regulation of Railways Acts, we get the following comparison :—

\* Number of train miles 225,000,000 = at 1*d.* per mile, 937,500*l.*

	Cost per Train Mile.		Increase and Decrease in 1879.	
	1879.	1869.	Increase.	Decrease.
	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>
Maintenance of way .....	6·38	5·94	0·44	—
Locomotive power .....	8·19	8·13	0·06	—
Rolling stock .....	2·91	2·70	0·21	—
Traffic expenses .....	10·41	8·73	1·68	—
General charges .....	1·46	1·43	0·03	—
Rates and taxes .....	1·63	1·42	0·21	—
Government duty .....	0·80	0·80	—	—
Compensation—				
Personal injuries .....	0·22	0·51	—	0·29
Damages to goods .....	0·20	0·21	—	0·01
Legal and parliamentary expenses....	0·23	0·38	—	0·15
Miscellaneous .....	0·60	0·67	—	0·07
Total .....	33·00	30·87	2·13	—

“ In other words, whatever may have been the causes of the additional cost of working railways a few years ago as compared with a year like 1869, the main cause now left in operation is an increase of the traffic expenses. ‘Maintenance of way’ and ‘locomotive power’ now cost very nearly the same amounts per train mile as they did ten years ago, and what little addition there is is largely compensated by the satisfactory diminution in the cost for compensation both for passengers and goods, and in legal and parliamentary expenses. Into the nature of the item of ‘traffic expenses’ it would be out of place for us to enter here. The fact that all the other items have practically got back to the level of 1869 would seem to imply that there is something special in this item; that the cost of railway working in this particular has been permanently increased in consequence of the changes in the last ten years. Apparently the establishment for working the railways has been permanently increased, which would be the natural effect of such changes as the extension of the block system. It may be considered, however, that the noticeable reduction in the item of compensation for personal injuries and damages to goods already mentioned is not unconnected with the immunity from accidents which the improvements that have occasioned an increase of traffic expenses have secured. The returns of accidents show that those accidents have been diminished which the improvements were designed to prevent; and in the reduction of the compensation item we see the financial effect of the diminution. In future also, the change having once been made, the growth of traffic will be a reason for the steady diminution of the proportion of this item of ‘traffic expenses’ to the traffic. The steady though slow diminution of the cost per train mile since 1875 would seem to be of good augury in this respect. The special causes of diminution in the case of maintenance of way and locomotive power, where there is large outlay in material and coal, have not existed as regards this

item during the last two years, but the cost per train mile nevertheless appears to slowly diminish.

"This brings us to the question of what the recent progress has been. Generally we have seen that the cost per train mile, though it is now 33*d.* only, and the difference between the present time and 1869 is almost wholly accounted for by the increase of traffic expenses, has been much higher in the intermediate years, when the traffic expenses were not much higher than now, 1874 being the culminating point. In what items mainly was there an increase between 1869 and 1874 and a decrease between 1874 and the present time? The following table supplies an answer to this question:—

*Cost per Train Mile of the Undermentioned Items in 1869 and 1874, and in 1874 and 1879 compared.*

	1869.	1874.	Increase in 1874.	1874.	1879.	Decrease in 1879.
	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>
Maintenance of way .....	5·94	7·85	1·91	7·85	6·38	1·47
Locomotive power .....	8·13	10·80	2·67	10·80	8·19	2·61
Rolling stock .....	2·70	3·06	0·36	3·06	2·91	0·15
Traffic expenses .....	8·73	10·83	2·10	10·83	10·41	0·42
General charges .....	1·43	1·41	— 0·02	1·41	1·46	+ 0·05
Rates and taxes .....	1·42	1·42	—	1·42	1·63	+ 0·21
Government duty .....	0·80	0·75	— 0·05	0·75	0·80	+ 0·05
Compensation—						
For personal injury .....	0·51	0·43	— 0·08	0·43	0·22	0·21
Damage to goods .....	0·21	0·30	0·09	0·30	0·20	0·10
Legal and parliamentary } expenses .....	0·38	0·38	—	0·38	0·23	0·15
Miscellaneous .....	0·67	0·69	0·02	0·69	0·60	0·09
Total .....	30·87	37·89	7·02	37·89	33·00	4·89

"From this it is quite clear that substantially the change between 1869 and 1874 was a total increase of 7*d.* per train mile, of which 1·91*d.* was in permanent way, 2·67*d.* in locomotive power, and 2·10*d.* in traffic expenses; and substantially the change between 1874 and 1879 has been a total decrease of 5*d.*, of which the decrease in permanent way is 1·47*d.*, and in locomotive power 2·61*d.*, the reduction in traffic expenses, which accounted for nearly one-third of the increase between 1869 and 1874, being inconsiderable, though the tendency is clearly marked. Broadly, it may be said that 5*d.* out of the 7*d.* increased cost of working between 1869 and 1874, being due to the increased cost of permanent way and locomotive power, has since disappeared, but the remaining 2*d.* of increase, which was due to traffic expenses, remains. As we have noticed there is a tendency for the latter to diminish, though more slowly, but it remains substantially true that with the exception of this item the working expenses of railways are substantially in proportion to the work done, the same in 1879 that they were in 1869 after having been subjected in the meanwhile to violent fluctuations.



"There could be no better proof that much of the panic feeling indulged in a few years ago about the growth of the working expenses of railways was unfounded. The apprehensions about the rise in materials and coals have not been justified by the event which has rather proved that such a permanent advance could not take place without an equal advance in general business leading to an increase of railway traffic. Business having fallen off, the loss is largely made up to railway companies as to other traders by a diminished cost of working.

"Judging by the past, a further decrease of expenditure in proportion to receipts is to be expected in the immediate future, say in the current year and in 1881. This will be the necessary result of the first additions to the volume of traffic not leading to an increase of the work done to obtain the traffic. In 1879 the proportion of expenses to receipts would have been less but for the sudden loss of traffic in that year, and, now that traffic comes back as suddenly as it went away, the working expenses do not increase in proportion. Broadly, we anticipate that from much the same causes the proportion of expenses to receipts will be less in 1880 than in 1879, just as it was less in 1870 than in 1869. Whether expenditure will again grow as it did between 1870 and 1874 remains to be seen; but, looking to the above analysis, we should doubt if there is any reason to expect that the growth will be quite so great. Allowing that the cost of permanent way and locomotive power will again be driven up from much the same causes as existed between 1870 and 1874, there seems no good ground for expecting a corresponding increase of traffic expenses, which have not diminished since 1874 as the other items have done. Possibly there may even be a diminution in this item. It remains to be seen also whether the extensive relaying with steel rails, which has been going on during the last ten years, the cost in many cases being wholly charged to revenue, will really lead to a permanent economy in the cost of maintaining the permanent way. Altogether, unless some new source of mischief is developed, railway shareholders have apparently cause to look forward with hope to the prospect as regards working expenses during the next few years.

"While making these observations on the working expenses, we would especially refer to the full tables in the Appendix (Nos. 5, 11, 11a, 12, and 13), as containing much information which it would be hopeless for us to summarise in this report. These tables also contain full details of the progress made by each of certain leading companies in the various items of expenditure, which we submit for comparison without further remark.

#### *"Summary.*

"Our principal conclusions from this review of the last ten years may be very briefly summed up. While there has been in this period a considerable increase of mileage, and a larger proportionate increase of capital, the increase of gross traffic has been at a still greater ratio, and, but for the increase of working expenses being at a further greater ratio, there would have been a considerable addition to the aggregate rate of profit on the capital,



whereas that rate is much the same in 1879 as in 1869, after having been higher in the intermediate years. This increase of expenses, however, is found to be exclusively due, when a comparison is made between 1869 and 1879, to the increase of the item of traffic expenses, which appears now to be slowly diminishing, while there is no cause to expect that if traffic again increases the other items of expense will increase any more than they did between 1870 and 1874, if so much. With regard to the increase of traffic, again, it appears that during the last ten years the passenger increase has been exclusively an increase in the third class traffic, and the largest proportionate increase in goods has been in the mineral traffic. Notwithstanding also the actual decline of traffic during the last few years, the increase for the whole period has been  $44\frac{1}{2}$  per cent., and the mean of the percentages of increase in each year over its predecessor, making a deduction for the years of decrease, has been 3·8 per cent.\* Apparently, judging by the accounts of 1880, it is the mineral traffic and third class passenger traffic which are again increasing. The prospect seems thus not unfavourable for the shareholder, both as regards traffic and working expenses. The circumstances seem all to be such as to favour an increased receipt per train mile with little additional expense, while an additional 1*d.* per train mile, as we have remarked, is now equal to about 1,000,000*l.* The drawback is the constant increase of the capital account, though this, as we have seen, is not sufficient of itself to prevent an increase of dividends so long as the working expenses can be kept in check.

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## II.—*Notes on Economical and Statistical Works.*

*Report of the Indian Famine Commission. Part I. Famine Relief.* Presented to both Houses of Parliament by command of Her Majesty. (C-2591.) Sess. 1880.

The first part of the Report of the Indian Famine Commission, relating to famine relief, which has just been published, is one of the most valuable and instructive documents that has appeared for some time regarding India. The commission in the course of their investigations found it necessary to examine very fully into the history of India with a view to ascertaining the frequency, intensity, and extent of famines that have occurred in past times, and to learn what means have on different occasions been adopted to mitigate their severity and restrict their range of influence. The information thus obtained would alone be sufficient to give the report unusual importance, but there is much besides to render it worthy of the most careful attention from all who take an interest in our great Eastern dependency. The commission was ordered to be formed by Lord Salisbury, in a despatch dated 10th January, 1878, and on 16th May, 1878, the Indian Government formally appointed the following gentlemen as members: General Sir R.

\* See Table No. 6, Appendix.

Strachey, R.E., C.S.I., F.R.S.; President, Mr. James Caird, C.B.; the Hon. H. S. Cunningham, Judge of the High Court, Calcutta; Mr. G. A. Ballard, Madras Civil Service; Mr. G. H. M. Batten, Bengal Civil Service; Mr. J. B. Peile, C.S.I., Bombay Civil Service; Mr. C. Rangacharlu, C.I.E., Controller of His Highness the Maharaja's Household, Mysore; Mr. Mahadeo Wasadeo Barvé, Karbari of the Kollapur State; and Mr. C. A. Elliott, C.S.I., Bengal Civil Service, *Secretary*. In January, 1879, Mr. Ballard was replaced by Mr. H. E. Sullivan, of the Madras Civil Service. Mr. Batten left the commission in April, 1879, and Messrs. Rangacharlu and Barvé did not sit after the commission left India in October, 1879. The inquiries of the commission were directed by the despatch of the Secretary of State to two classes of subjects. "Of these," the commissioners remark, "one would include all that related to the measures to be adopted where severe scarcity or famine had actually arisen, and would involve an inquiry into the results of past experience as to the best system of famine relief, with special reference to such topics as the size and class of relief works, the nature of the tests to be employed, the amount of wage, the quantity of food necessary to sustain health and strength in famine labourers, and the conditions under which Government might interfere with the ordinary course of trade in the supply of food in a tract suffering from famine. The other part of the commission's inquiry was to be directed to the question, 'How far is it possible for Government, by its action, to diminish the severity of famines, or to place the people in a better condition for enduring them?'" Under this latter head the question of irrigation, railway communication, and similar matters were indicated as suitable subjects of inquiry. The Indian Government when appointing the commission, amplified the instructions of the Secretary of State, and went into details on various points, such as the alleged unwillingness of the Madras ryot to aid in the construction of wells, by reason of the nature of the land tenure in that Presidency. As soon as the members of the commission had made a preliminary survey of the varied and difficult subjects submitted for their consideration, they perceived that they were in need of more exact information than could be obtained from any official records then in existence. They therefore drew up a series of inquiries, which were sent to each of the local governments, with a request that the information asked for should be supplied by "the officials most competent to give valuable and trustworthy replies." The result of this measure was satisfactory, and greatly assisted the commissioners in their labours.

The plan of the report is thus set forth in the preliminary remarks. The commissioners say: "We shall first give a concise sketch of the geography, population, and climate of British India, indicating generally the degree in which each part of the country is exposed to famine. Next we shall treat of the measures to be adopted for famine relief, prefacing our conclusions and recommendations by a concise historical review of past famines and the measures adopted to meet them. We shall then deal with the inquiry (to use the words of Lord Salisbury's despatch) 'how far it is possible for Government by its action to diminish the severity

of famines, or to place the people in a better condition to endure them?' This part of our report will be prefaced by a general account of the country in relation to the social and economical condition of the people, the form of administration, the progress of material improvement, and other kindred subjects, on the consideration of which our reply to this part of the inquiry must be based. The report will be accompanied by a detailed history of all the past famines regarding which sufficient records exist, a model famine code, and appendices containing a collection of discussions on certain topics which call for fuller consideration than would have been convenient in the report, and selections from the evidence and documents of which we have made use." It will be seen from this scheme that interesting as is the portion of the report already before us, that which is to follow will probably be, in some respects, still more interesting.

The commissioners after stating the area and population of India, point out that of the total  $1\frac{1}{2}$  million square miles with a population of 240 millions, 600,000 square miles inhabited by about 50 millions of people belong to native States, the administration of which is not in British hands. It is also needful to observe that of the earlier famines several occurred in States not at the time included in British India. Of this Oudh is a conspicuous example, that province not having been annexed by us until 1856. The *résumé* of the characteristics of the climate of the various parts of India, as determined by the physiography of the country, is valuable as far as it goes, but the commissioners are of opinion that the information at present available regarding this matter is insufficient, and they would, on various grounds, urge "that, as the expense of such researches would be small, the measures which have recently been taken by the Government of India to carry them out should be continued, and even extended in the future." They also remark on the importance of extension of meteorological knowledge among officials and all classes in India. The tentative theory put forward by several good authorities that there is a connection between the variations of rainfall and the variations in the extent of the solar energy, as measured by the extent of the solar surface affected by sunspots is touched upon, but the evidence in its favour is dismissed as insufficient to establish it as a basis for action. The remarks on the climatic conditions of the various provinces are illustrated by a cartographic map of the rainfall of India, the country being divided into districts and coloured with tints varied according to the average number of inches falling yearly in each district. For instance the greater part of southern, eastern, and central India, comprising the Carnatic part of the Nizam's dominions, the central provinces, Bengal, central India, and the north-west provinces, are coloured light green, indicating that over that area the rainfall varies in different places from 30 to 70 inches. Travancore, and the whole of the western seaboard almost to Surat is very wet, and the rainfall averages 70 inches and upwards, while in Sindh and the southern portion of the Punjab the rainfall is less than 15 inches. Sindh, indeed, may be described as a country almost wholly without rain, and dependent



for water supply on artificial irrigation from the Indus, but, nevertheless, famine from drought is hardly known there, the great river being abundantly furnished with water from the gigantic snowfields of the Himalaya. The fact that such a country as Sindh has been artificially made free from drought by irrigation works is very suggestive, as showing what may be done in a district where the people have never been able to rely on rainfall. In Orissa, on the other hand, there have been terrible famines, not so much because the rain failed altogether, but because it ceased prematurely. In Mysore and the Deccan the rainfall is between 15 and 30 inches, and as the irrigation system is insufficient to cope with seasons of extreme drought, famines have been frequent in these two districts.

The difficulty of dealing with the famines on such enormous scale as those which afflict India is much enhanced by the very limited knowledge available regarding the demography of the country. The commissioners more than once allude to this grave deficiency, which, in our opinion, is no small cause of the unsatisfactory treatment that has been applied to famines hitherto. The magnitude of the population of the various provinces is not known with any sufficient accuracy. "In only two provinces has more than one regular census been taken," while "of the rate of increase of the population little is known at present." In the north-west provinces the rate of increase during the interval between two censuses "appeared" to be 0·52 per cent., and in the central provinces 0·33 per cent. In a matter like famine relief, in which accurate knowledge of the numbers likely to need relief is everything, this dearth of good statistical information is clearly most baneful. The commissioners give a rough estimate of the distribution into classes of the 190 millions composing the population of British India, as follows:—

Agricultural .....	56 per cent. or 106 millions.	
Traders .....	18	34
Labourers .....	16	30
Professional and service ....	10	20
	<hr/> 100	<hr/> 190

This table is useful, but the figures on which, we assume, it must have been based, namely the estimates or, when possible, the returns of the proportions of these classes in different provinces, would have been more useful still, and would have been worth publishing. For as the commissioners point out elsewhere, the order in which the various classes of the population become subject to want during a famine is almost constant, and consequently it is of grave importance for the authorities to have a general idea as to the relative magnitude of these classes, with a view to making suitable arrangements for relief works. The section of the report which deals with the history of past famines is interesting, but the records of those which occurred previous to the present century are too scanty to be of much value for practical purposes. Many of those which occurred before the British occupation were due to



war and not to famine, and as long as our supremacy was contested, portions of the country were liable to famines thus caused. The famine of 1802-04 was rendered more severe in Bombay by the devastation wrought by the Pindari horsemen attached to Holkar's army. During this famine the Government prohibited exportation, and itself imported grain into the famine-stricken districts, besides remitting revenue, and making loans and advances to landowners. The famine of 1807 in Madras was "the first occasion on which we have distinct evidence of a fact which, as shown by later and more accurate observation, has characterised all subsequent famines in India. Large crowds of emaciated people flocked into the town of Madras, attracted thither by the existence of a charitable association, and by the hope of obtaining gratuitous help without limit." The plan of supporting the famine-stricken population by means of a system of relief works was first adopted as early as 1792 by the Madras Government, and the same plan was tried in 1807 in the districts affected. After 1807 the records of famines and of the expedients brought into use to alleviate their severity are tolerably copious. During the famine of 1806 the Madras Government at first refused to exercise any interference with private trade, but it found itself obliged to depart from this principle and to import grain, much of which was sold at a loss after the famine had ceased. The Government of Bombay in 1812-13 carried out fully the principle of non-interference which has since been generally regarded as the best. The great famine of 1833, generally known as the Gantur famine, took the Madras Government by surprise, and little was done to relieve the inhabitants. There was a very severe famine in 1837, which affected the north-west provinces and the native States adjoining. The Government, though as usual very ill-supplied with the needful statistical information, took the alarm early, and opened public works freely. About 200,000*l.* is reported to have been spent on these works, and about 35,000*l.* additional was expended in gratuitous relief. It is rather remarkable that prices did not rise to a point which would now be considered as indicating extreme tension, but it is to be remembered that prices vary so much in different parts of India that it is not safe to conclude much from them. The Madras famine of 1854 was a severe one. About 122,800*l.* was spent on relief works, which when subsequently valued were found to be worth about 38 per cent. of their cost. The principles on which relief should be administered were actively discussed during this period, and as on each occasion different modes of treatment were adopted, the Government had a considerable body of information on which to ground its suggestions to the officials of the famine stricken districts. After the famine in the north-west provinces in 1837, the general principle that it was the duty of the Government to find work for the able-bodied, while the infirm and helpless could best be dealt with by private charity, was regarded as established. The north-west provinces were not again visited by famine until 1860-61, and the distress then was limited as to area, and the harvests in the neighbouring districts were good. The general principles acted on were the same as those observed in 1837, but

greater care was taken to avoid waste. Such gratuitous relief as was given was distributed in the form of cooked food to those who having left their homes submitted to reside in a poor-house. The chief exceptions admitted were those of respectable women whose caste did not admit of their appearance in a public place. In 1866-67 there was a severe famine in Madras and in Orissa. Distributions of cooked food were made, except in certain cases. The Orissa famine in 1866 was due to the premature cessation of the rainfall, and in part to the fact that there never having been a famine there before, the officials were ignorant of the signs of its approach, and inexperienced in dealing with it. When the true state of the case became known, the monsoon had set in, and communication both by land and sea was almost wholly cut off. By great exertions the Government succeeded in sending in 10,000 tons of rice towards the end of the year, but the mortality of the people had been very great before this relief reached them. Next year this unfortunate district suffered from excess of water, the harvest being to a large extent ruined by floods, and measures of relief were carried out at great expense. In 1868-69 central India and the native States of Rajputana were attacked by a serious famine. The native Governments were unable to do anything on an adequate scale. Relief works were opened in Ajmir and other British districts, but the number of applicants was so great that no proper supervision could be exercised, and the results were very unsatisfactory.

The famine which visited the north-west provinces and the Punjab in 1868, was remarkable for the fact that it was then declared for the first time "that the object of Government was to save every life, and that district officers would be held responsible that no preventible deaths should occur." The famine was foreseen, and the relief measures were planned in ample time. In the north-west provinces 65,000 persons were employed for a year, and about 18,000 received gratuitous relief during that period, the total cost being 460,000*l.* In the case of some of the minor works provided, it was found that persons not in immediate need of relief were attracted, and measures had to be taken to prevent this. The Behar famine of 1873 was caused like that in Orissa in 1866 by a premature cessation of the rains. The Government made the most elaborate preparations to meet it, and resolved to provide the districts with the whole of the food they were likely to need. The relief works were on a very large scale, and the tests applied were relaxed in districts where distress was very severe. Indeed an endeavour was made to dispense with tests altogether, and to rely on the personal inquiries of inspectors appointed for the purpose. The expenditure was 6,500,000*l.*, as much as that of all previous famines put together. It was very effective, however, for no deaths due to famine occurred on this occasion. In Oudh, also, there was an alarm of famine which turned out to be without cause, and a good deal of money was unnecessarily spent on relief works, the wages given being excessive. The last famine in the record, that which visited southern India in 1876-78, was the most severe evil of the kind that has occurred since 1803. During 1877

prices were very high all over India. In the autumn of 1876 the authorities of Bombay and Madras were aware of what was coming, and took measures to meet it. The Indian Government sent Sir Richard Temple as famine delegate to inspect the distressed districts. He was instructed to affirm in the strongest way the principle that no efforts were to be spared "to save the population of the distressed districts from starvation, or from an extremity of suffering dangerous to life." At the same time it was stated that the Government "would not attempt the task of preventing all suffering, and of giving general relief to the poorer classes of the community," and that "the task of saving life, irrespective of the cost, is one which it is beyond their power to undertake." These views regarding the duty of the Indian Government are a little contradictory, but they were perhaps the outcome of alarm at the enormous expenditure incurred in Behar, where orders had been given that "no expense was to be spared." The Bombay Government operated by establishing large public works, the amount of gratuitous relief given being reduced as much as possible. It is remarkable that at one time there was a strike of labourers on the relief works; it was not given way to, however. The death-rate was very high in those districts to which the means of access were defective, but elsewhere the arrangements made prevented an excessive rise in the rate. In Mysore the Government were prepared for distress, but their measures were not sufficient for the actual requirements of the case. No large works of a suitable kind were started until it was too late, and there was a want of proper inspection of such works as were opened. In September, 1877, Lord Lytton visited the distressed districts and ordered large works to be commenced, in case the crops should fail again, as seemed likely at that time. Fortunately there was no need of further measures of relief, as the rain fell in time to save the harvest. The commissioners had not received any account of the famine in Madras at the time of writing their report. The Madras Government at the commencement adopted the precedent set in Behar in 1873, and bought large stores of grain. They also commenced large public works, and later, by order of the supreme Government, minor works were also opened. When Sir Richard Temple arrived in the famine districts, he considered the wages paid were too high, and they were accordingly reduced. Subsequently it was resolved to restore the former rate. The Viceroy visited Madras at the end of August, 1877, and ordered a great extension of the system of large public works already in force. The formidable character of the famine may be judged from the fact that in September the number of persons supported by the Government was 2,218,000, and that the mortality due to it is estimated at 2 millions. The money spent amounted to about 8,000,000*l*.

There was a failure of rain in the north-west provinces in 1877, and a famine of some severity resulted. The commissioners remark on it that "the relief works were for the first time placed more entirely under the officers of the Public Works Department, with little control from the local civil officers, and the effect of



this was not good." The mortality was high, and yet the price of grain did not rise very seriously.

This valuable record of famines is supplemented by a tabular statement of them, and by maps showing the areas affected by them. From it the commissioners conclude that taking the twenty-one famines and scarcities of the last one hundred and nine years, "the proportion is twenty-four years of bad seasons to eighty-five years of good, or about two bad to seven good; in each case on an average one-twelfth of the population of the whole country, that is about 20 millions, may be approximately taken as the portion affected, so that the result might be said to be equivalent to a famine or scarcity over the whole country once in fifty-four years." To put the result another way, a scarcity is to be expected two years out of every nine, and a great famine every twelve years. It also appears probable that northern and southern India are not likely ever to be simultaneously affected by famine. The famine of 1876-78 may be taken as an extreme case, and the commissioners therefore assume that "the largest population likely to be severely affected by famine at one time may be put at 30 millions." The duration of famines is naturally affected by the length of the interval between one harvest and the next season for sowing, or between the two harvests in cases where there are two in one year. It is observed that extreme pressure does not arise until local stocks are appreciably reduced, and also that when the prospects of the next harvest are secure, reserves of food are released by their owners. It is therefore considered that the pressure caused by drought in one year will last about eight or nine months.

The commissioners consider that "an estimated failure of even a third of the year's outturn will always demand the vigilance and preparedness on the part of the authorities." They remark that great caution must be used in attempting to estimate the severity of a famine by reference to prices, since the conditions vary enormously at different times and places. "It is a well ascertained fact that prices which would be regarded as indicating famine in one part of the country are quite compatible with undisturbed prosperity in another." With regard to the effects of scarcity on the death-rate, they remark that the data for determining this are very defective, as at present there are no vital statistics of any value regarding the populations of India. At periods of famine the rate of mortality is, as a rule, higher than in ordinary times, but the commissioners think it possible that this is, in some cases, due less to actual starvation than to the same causes which destroy the crops, namely, "abnormal conditions of temperature and humidity." The famine of 1876-78 is estimated to have increased the normal mortality of the districts affected by about 40 per cent., but there is no doubt that the normal death-rate in India is higher than in England, and is also liable to wider fluctuations. In connection with this may be mentioned the fact that in September and October, 1879, a mortality was registered in the north-west provinces, then quite free from any scarcity, which was far in excess of rates prevailing in districts suffering from severe famine. Famine, in short, appears to be "only one, and perhaps not the



most deadly," of the forces which act against the lives of the people of India.

At this point of the report (para. 81) the commissioners again allude to the vast importance of the diffusion of knowledge of the economic conditions of India, and of good agricultural statistics in an accessible form.

After the Behar famine of 1873-74 the Indian Government came to the conclusion that preparations for future famines ought to be made out of annual income, and it was arranged that a sum of 1,500,000*l.* should be set aside yearly for this purpose. The commissioners point out that there is no cause for fear that famine relief will be a source of serious financial embarrassment to the country. Taking the maximum number likely to require relief in any one year as  $2\frac{1}{2}$  millions, a higher figure than was attained in 1877 even in Madras, and reckoning 5*l.* per head, the maximum charge for any year would be 12,500,000*l.* But this estimate would be far in excess of the average requirements of a series of years. The commissioners having remarked that the want of diversity of employment is one great source of the disastrous consequences of a famine in India, and that in spite of the risks to which he is exposed, the physical comfort of an Indian peasant is greater than that of one of the same class in northern Europe, proceed to consider the position of the State towards subjects so liable to great calamities such as famines. The general principles on which the relief, which by general agreement the Government is bound to furnish, should be administered, form the subject of careful consideration in the remaining pages of the report. Two indispensable conditions of any scheme of relief are stated to be, that it should not check thrift and self-reliance, and that it should not impair the structure of society. It is necessary to observe that no plan of making a district responsible for its own poor relief could be adopted in India, the scale on which relief has to be given being too great.

The principal rules of action which the commissioners suggest are seven in number. They are, *first*, the adoption of a definite system of procedure, to be embodied in a famine code. At the same time an improved system of obtaining and recording statistical and other information regarding famines should be adopted. *Second*, to provide the able bodied with work at the cost of the State, at an early period in the famine; and *third*, to supply gratuitous relief to such as are incapable of work, through village officers or head men, whenever possible. *Fourth*, to organise a system of village inspection during famine periods. *Fifth*, to interfere as little as may be with the operations of trade, and to facilitate trade by improving the means of communication. *Sixth*, to remit to the landlords the land revenue during a period of serious loss of harvest on condition that they grant a proportionate relief to their tenants. *Seventh*, to define accurately the limits of local responsibility for expenditure on relief.

The preparation of a famine code would be accompanied by the creation of a department, to be called the agricultural department, to administer it. This department would concentrate the work now

done by various scattered offices, and in ordinary times would be largely occupied in improving the arrangements for obtaining and recording statistical and other information relative to the condition of the agricultural community. There would also be an agricultural department attached to each of the local governments. On the occasion of a famine, the agricultural department of the local government in which it occurred, would appoint a famine commissioner with full responsibility for directing all branches of famine relief. This officer should be firmly supported by the Government in any measures he holds to be necessary. One of the duties of the department would be to make the village accountants responsible officers with a clearly defined set of duties, and to place a special officer in each district to gather, supervise, and arrange statistics relating to the economical position of the district, and generally to supply information regarding demography.

The general principles of the arrangements for the relief of the able bodied should, in the opinion of the commissioners, be the opening of relief works, of a kind such that they can be executed by unskilled labourers, the wages to be paid by "the task," which task should be only 75 per cent. of what would be required in ordinary times. Piece work, as understood in Europe, should be introduced when the labourers prefer it, but the wages given should not be much in excess of the wage for task work. The management of the works would be in the hands of the public works department, which would be responsible for having a list of suitable works ready to be opened when required. By watching the numbers applying for work the Government would be able to obtain an idea as to the real dimensions of the famine, and could extend or restrict the works accordingly.

Gratuitous relief, which will always be to some extent necessary, is best given through the village system, and the village officials. This plan may probably involve too free a grant of relief, but this evil may be minimised by efficient supervision. Relief houses will be established for persons having no homes, or who have wandered in search of food, as well as for able bodied persons who refuse to work. The class of wanderers will be much reduced by an efficient system of village inspection, to be created when a famine is imminent. The inspectors will be able to inform the people where food is to be had, and, generally, what arrangements have been made for their welfare.

The most important part of the whole report, in many respects, is that devoted to the question of food supply. The commission was unanimously opposed to interference with private trade beyond what was absolutely necessary. But on another point connected with the supply of food there was an important difference of opinion, the majority being against any scheme for Government storage of grain, while Messrs. Caird and Sullivan advocated one, the details of which they explain in a separate report. The opinion of the majority was based on the general maxim, not denied by the minority, that governments should not engage in commercial operations, coupled with an assertion that private trade was sufficiently active in India to bring that

country within the range of application of the maxim. They also give estimates, which they admit to be "rough and approximate," of the ordinary outturn of food in British India. By these figures it would seem that this ordinary outturn is over 50 million tons, and the ordinary surplus available for storage, for export, or for the luxurious consumption of the richer classes is more than 5 million tons. The following is the table :

[In thousands, 000's omitted.]

Province.	Popula- tion.	Food Crop Area.	Out- turn of Food.	Area under Non-Food Crop.	Ordinary Consumption.					Sur- plus.
					Food.	Seed.	Cattle Food.	Wast- age.	Total.	
Punjab .....	17,600,	Acres. 18,500,	Tons. 5,330,	Acres. 2,500,	Tons. 3,800,	Tons. 390,	Tons. 250,	Tons. 270,	Tons. 4,710,	Tons. 620,
N. W. Provinces } and Oudh .....	41,000,	31,450,	11,230,	5,200,	8,420,	820,	830,	500,	10,570,	660,
Bengal .....	60,000,	48,000,	17,100,	?	13,000,	1,000,	1,000,	900,	15,900,	1,200,
Central Provinces ....	8,200,	12,000,	2,750,	2,500,	1,660,	460,	180,	150,	2,450,	300,
Behar .....	2,250,	3,700,	620,	2,800,	400,	30,	80,	30,	540,	80,
Bombay .....	16,000,	21,500,	4,500,	5,500,	3,300,	290,	260,	210,	4,150,	350,
Madras .....	31,000,	26,000,	8,500,	2,500,	6,300,	400,	440,	420,	7,560,	940,
Mysore .....	5,000,	5,100,	1,500,	500,	1,100,	60,	50,	75,	1,285,	215,
Burmah .....	—	—	—	—	—	—	—	—	—	800,
Total .....	181,350,	166,250,	51,530,	21,500,	37,980,	3,450,	3,090,	2,555,	47,165,	5,165,

On the data supplied by these figures, the commissioners argue as follows. In the Madras, Mysore, and Bombay famine of 1876-78, the year's outturn was 6 million tons short of the average. The actual crop was then about  $4\frac{3}{4}$  million tons less than the amount required for ordinary consumption. But they assume that "a calamity of this kind immediately leads the population to reduce its ordinary rate of consumption both for men and cattle, and to guard more carefully against the waste that usually occurs. So far, too, as land remains unsown during the drought, something is saved in seed grain. From these causes the above-stated deficit of  $4\frac{3}{4}$  million tons might be reduced to 3 millions." We should have liked to see the evidence on which this assumption is grounded. The report proceeds to remark that to meet this deficiency there would be, "first, the local stocks of the distressed area, which taken at three months' supply of the people's food, amount to  $2\frac{3}{4}$  millions; second, the year's surplus of the districts not affected, which by the figures in the above table would be  $3\frac{1}{2}$  million tons, but which might be expected to be larger in consequence of the diminished consumption; and third, the local stocks in those districts." The latter source of supply seems to us to be of very doubtful value. It is added that supplies could be obtained from other countries in case of extreme need. On the above grounds the majority of the commission have placed on record their opinion that "the surplus produce of India, taken as a whole, furnishes the means of meeting the demands of any part of the country likely to suffer from famine at any one time." In regard to Government



storage their objections to it are of the usual character, but they give special reasons against it based on its assumed costliness. To be adequate, they say, such storage must be on a large scale. Since  $7\frac{1}{2}$  per cent. of the people may at any one time require relief, and the whole population needs it on the average once in fifty-four years, a population of 40 millions would require, at six persons to the ton, a total quantity of 500,000 tons. "If it is stored, its original cost will be enhanced by interest for fifty-four years on the capital invested in the purchase, which will be  $2\frac{3}{4}$  times its first price, and by the cost of storing, renewal to meet waste, and management, which should certainly be taken at not less than the interest, so that the ultimate cost will be  $6\frac{1}{2}$  times the first cost." They add that if the grain were purchased as required, even in times of high prices, its cost would only be three times the price in a period of low prices, and that the proposed plan of storage would paralyse the operations of private traders, and thus hinder the progress of India.

Before describing the remainder of the report, it will be convenient at this point to consider the points on which Messrs. Caird and Sullivan differ from their colleagues. With regard to relief measures these gentlemen are in favour of a greater degree of simplicity, and less interference with the village system than that recommended in the report. They consider that the management of the Behar famine should be the guide, since it is the only instance in which what ought to be the first object, the saving of life, was attained. They argue that 30 millions of people may be considered as the greatest number likely to be affected at any one time by famine, and 10 per cent., or 3 millions of these may need relief for a year, which would require, at 3*l.* per head, an expenditure of 9,000,000*l.*, which "would provide relief on a scale double that given in Madras and Bombay in 1876-78." They therefore consider that the proposed famine reserve of 1,500,000*l.* would be ample, and add, moreover, that this would be a small expenditure on poor relief compared with that given in the United Kingdom. They disapprove the "task-work" system, and recommend payment by the piece, "on a scale adjusted in accordance with the market price of food." They would deal with idlers by giving gratuitous relief on a restricted scale.

With regard to the estimates of grain supply above given the dissentients remark that they can place no confidence in them, arguing that if there is an annual surplus of 5 million tons, 4 millions are available, allowing 1 million for export, for laying by, "a quantity sufficient to feed 24 millions of people." Yet when famines come, it is only by immense pressure that sufficient supplies can be obtained. They also remark that they cannot agree that India is, as a whole, self supporting. Population increases, while the production of food hardly advances. Moreover, the wages of the people "bear a less proportion to the price of food than in any country of which we have knowledge." They argue strongly in favour of the storage of grain in seasons of plenty, in pits constructed and lined with baked clay on the plan adopted by the natives. Trade, they allege, is too slow in its



operations, the profit being much a matter of speculation. The storage would only be needed for districts difficult of access, and it might be done on the basis of securing 666,000 tons of grain "during the first period of eleven years, which would be the whole quantity necessary to feed for fifty-four years 10 per cent. of the population, or one-fifth part of India, the proportion here assumed to be difficult of access." The grain would be bought in years of plenty on the spot where grown, at 4*l.* per ton, delivered at the pits, and the cost of storage may be taken at 10*s.*, making together 4*l.* 10*s.* The quantity annually stored would be 60,000 tons, at the cost of about 270,000*l.* At the end of eleven years one-fifth would have to be replaced at a cost of 594,000*l.*, spread over the next eleven years, when another fifth would have to be replaced, and so on until the cycle of fifty-four years ended, and a fresh one commenced. It is evident that the cost would be higher during the first fifty-four years than afterwards, the annual average cost becoming less as each period of eleven years elapsed. At the commencement of each new cycle there would be four-fifths in stock. The dissentients point out that the rate assumed in the report to be paid as interest on the capital invested in the storage of corn is much too high, since India can borrow at 4 per cent.

To return to the report, the commissioners approve the practice of suspending the land revenue in cases of general agricultural distress, care being taken that rents are remitted by the landlords to a corresponding extent. They also recommend the granting of loans to landlords and other persons who are likely to make a good use of them. The principle of local and financial responsibility must be worked with great care, the circumstances of different provinces being so various. The local governments may properly be required to provide means for protecting their own provinces against famine, and of meeting the cost of it when it occurs. Executive responsibility may be properly extended to municipal committees and other small local organisations.

Under the head of "Miscellaneous" a few subordinate points are treated of, the most important being a discussion of the functions of private charity, which the commissioners consider to be best performed in judicious support of the poor when the famine is over, and they may require money to repurchase tools, stocks, &c. There are also observations on the treatment of subjects of native States and of wanderers.

*Twenty-fourth Report of the Commissioners of Her Majesty's Customs on the Customs* (for the year ended 31st December, 1879), 1880.

The introductory remarks to this report contain some remarks on the general question of the amount of goods taken out of and brought into the country which are of some interest. Referring to a former report in which the import-export controversy was discussed, they say:—"We make no apology for returning to this subject, the less so as we have been enabled, since we reported in 1877, to obtain further information bearing upon it." The commissioners then submit some general remarks on foreign trade, concluding with the very sound observation that we must

apparently attribute to a "perversity of disposition" that "disturbance of mind and reason which appears to dread and mistrust a trade from which a nation receives back more value than it sends out, or in other words, which results in the value of its imports being in excess of that of its exports." They next point out how much the investigation is complicated by the fact that the record of imports and exports is necessarily limited to fixed periods and to areas defined geographically. Although the ascertaining what wealth enters and leaves the country is easier in the case of the United Kingdom than in that of a country which is not an island, the difficulties in satisfactorily determining this all important point are almost insuperable. The official records are necessarily incomplete, and the commissioners have attempted to supplement them by inquiries instituted among private persons and others who might be able to render assistance. They are of opinion the freight ought not to be reckoned as a set off against the excess of imports, on the ground that freight is an increment of value which accrues to the goods after they have left the exporting country. This is correct as far as it goes, but we think a good case may be made out nevertheless for treating not only freight, but insurance, as reducing the nominal excess of imports. This, however, is a side issue, and we must pass on to the main points. The commissioners urge that the old practice of treating the exports and imports of bullion as separate from those of other articles ought to be abandoned, and they spend some little time over an attempt to distinguish between the medium of exchange itself and promises to supply the medium of exchange. So long as bullion is treated as a special sort of merchandise, so long will the various delusions, arising from the fact that gold and silver are employed for a particular and very conspicuous purpose in the economic system of the world, subsist. The "foreign and colonial merchandise," the "coin and bullion," together with the "merchandise in transit," constitute the information as to imports officially obtained. But the commissioners proceed to add a list of other classes of articles brought into the country, regarding which they have made inquiries. These are: "ships built abroad, bought by the State or by residents in the United Kingdom from foreign States or residents abroad for purposes of war or for local use in the United Kingdom; ships built abroad, bought by residents in the United Kingdom for general commercial purposes; coin and other property brought into the United Kingdom by immigrants; coin and other property brought into the United Kingdom by ordinary passengers." Regarding wealth thus introduced into the country, the commissioners have, through the "courtesy and good will of those who had it in their power to afford it," obtained in some cases direct returns of value, in others information enabling them to estimate values.

Taking the exports, on the other hand, there are similar deficiencies in the information available. The classes of value of which no returns are made are: (1) "Increment of value on merchandise in transit at the time of export." (2) "Ships built in the United Kingdom sold to foreign States or residents abroad for

purposes of war or local use." (3) "Ships built in the United Kingdom sold to residents abroad for general commercial purposes." (4) "Stores of all ships employed in the foreign trade supplied in the United Kingdom, including coals." (5) "Stores of all Queen's ships supplied in the United Kingdom and expended out of it." (6) "Coin and other property taken from the United Kingdom by emigrants." (7) "Coin and other property taken from the United Kingdom by ordinary passengers." In regard to these classes also valuable information has been obtained. The "increment of value on transit trade" is set down at 3 per cent. It would have been well if the reasons for this estimate had been given. In regard to the emigrants and immigrants, and the ordinary passengers, the commissioners made estimates founded on the official returns supplemented by inquiries from shipping and other companies. The "balance sheet" containing these additional items gives a total of 402,259,322*l.* on the import side, and of 308,146,515*l.* on the export side, thus making the so-called "balance" against us 94,112,807*l.* The commissioners very properly remark that any such "balancing" of the two sides of the trade account is of very limited value as a test of the position of a nation.

*The Condition of Nations, Social and Political, with Complete Comparative Tables of Universal Statistics*, by G. F. Kolb. Translated, edited, and collated to 1880. By Mrs. Brewer; with original notes and information by Edwin W. Streeter, F.R.G.S. George Bell and Sons, 1880.

Mrs. Brewer has translated Baron Kolb's great work on the Condition of Nations in a very careful and satisfactory manner. There is a certain disadvantage attaching to the translation of books like this, which are almost wholly composed of figures and comments on figures, namely, that both translation and original inevitably get out of date by the mere lapse of a year or two. It seems almost a waste of time to translate such a work, especially as the original is fairly accessible to inquirers, and even if it were not so, there are excellent works of the same class published year by year in English, French, and German. The great bulk of the volume may be described as an enlarged variety of the species of which the best known in England is the *Statesman's Year Book*, and the best known in Europe the *Almanach de Gotha*. At the same time Baron Kolb's work certainly contains useful information in fields left blank by these two publications. In vital statistics especially he has taken pains to be strong. But the most interesting part of the volume is the introduction on "The Philosophy of Statistics." It gives a rough outline of the class of social phenomena which statistics enable us to observe. Such a work, if systematically performed, would be of great value, especially if accompanied by a criticism of the method of statistics. Unfortunately Baron Kolb has not thought fit to treat the subject on any system, being content to point out a number of cases in which statistics have been proved to be practically useful, and to call the attention of his readers to the regularities which are noticeable in some of the more conspicuous phenomena of social life. From a



writer of Baron Kolb's learning we had a right to expect an essay on the Method and Results of Statistical Inquiry, illustrated by the mass of information contained in the rest of the volume. What we actually have is a well written but desultory paper on "The Wonders of Science," as manifested to the social inquirer. Although, however, the scientific student will be disappointed with Baron Kolb's Introduction, we are very far from considering it useless. On the contrary, such is the density of the ignorance of the phenomena which statistics enable us to perceive, that we ought to be very thankful to anyone who will take the trouble to place some of these before the public in a readable form. And from this point of view we must express our obligations to Mrs. Brewer, who has performed her task of translation well.

*History of Political Economy in Europe.* By Jérôme Adolphe Blanqui. Translated from the fourth French edition by Emily J. Leonard. With a preface by David A. Wells. George Bell and Sons. 1880.

The first edition of Blanqui's *Histoire de l'Economie Politique* was published more than forty years ago, and the later editions only brought the work down to 1842. During the later years of his life he was occupied with important works of a special character, and he made no changes in the work subsequent to that year beyond writing a new preface to the edition of 1837. When he died early in 1854 he was engaged, by order of the *Académie des Sciences Morales et Politiques*, in investigating the condition of the rural population of France. His history, now for the first time, as far as we know, translated into English, is well worthy of the high reputation in which it is held. Blanqui was a free trader at a time when the principles of free trade had made but little way in France. He was a pupil of J. B. Say, who persuaded him to study economics and abandon the career of a teacher of chemistry and other physical sciences. He succeeded Say as professor in the *Conservatoire des Arts et des Commerces* in 1833. Blanqui's work was written in order to point out, in opposition to the general opinion current at the time of its appearance, that political economy was not an invention of Turgot and Quesnay, but that in ancient times, as well as in the middle ages, its subject matter had been discussed and considered at great length. He quotes from several authors of antiquity in support of this view, and traces the characteristics of society in Greece and Rome in a very interesting manner. He calls attention to the curious anomaly in Plato's Republic, that he had a full perception of the advantages of division of labour, and the uses of money, and yet was unable to speak of artisans and traders except in terms of the deepest contempt. He apparently thinks that the only useful thing the Romans did was to make roads and keep them in repair—a view which will hardly bear examination at the present day. But his remarks on the ruinous system which forbade free citizens to engage in industrial occupations unless they were born to them show a full comprehension of the causes which led to the break-up of the empire. His account of Charlemagne and the transition to the feudal system is brief, and he passes on to the crusades, of



which the economic effects were very extensive, in that they gave a great impulse to navigation and introduced a number of new industries into Europe. Blanqui shows how vast masses of property came into the hands of the townspeople, and how the power and importance of the mercantile class increased during the period of the crusades. He then traces the history of the Jews in the middle ages, notices their use of bills of exchange and the high development of their commercial system. As regards the invention of bills of exchange, he thinks it probable that the Lombards and the Jews must share the credit of the discovery. But, as he points out in a note, quoting M. Courcelle-Seneuil, instruments resembling bills of exchange were in use at Athens in the third century B.C. The rise of the Hanse towns and the services they rendered to the development of commercial enterprise occupies some pages, and Blanqui then treats of the origin, in the reign of St. Louis, of the extensive system of corporations which did so much good and so much mischief in France. After noting the rise and downfall of the Italian republics, he proceeds to discuss the influence of Charles V, of whom he has hardly a good word to say, regarding him as the founder of the system of restriction and "protection" from which Europe has suffered so much. He considers Charles to have done more harm than Philip II, because the evil wrought by the latter ended with him, while his father's system continued to oppress the nations long after he was dead. This view savours a little of paradox, considering what Philip's work really was, and besides, Charles, though he did much to lead the countries he governed into the wrong economic path, was most ably and sedulously seconded in the same bad course by other European potentates. We need not follow Blanqui's exposition down to more recent times, especially as his work becomes more and more a history of France. The administrations of Sully and Colbert receive full treatment at his hands, and the rise of the mercantile system is traced with care. The latter part of the volume gives a valuable exposition of the doctrines of the various schools that have come into existence since political economy became a recognised body of useful truths. The last chapter but one gives a general view of the characteristics of the systems adopted in the various countries of Europe. The translator's work is fairly well done.

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### III.—Notes on some Additions to the Library.

*Le Commerce Extérieur de l'Egypt pendant l'année 1879.* Cairo, 1880.

The process of introducing regularity into the administration of Egypt is going on with commendable rapidity. The commercial and other statistics issued by the *Direction Générale de la Statistique*, under the superintendence of M. Amici, are full and well arranged, and there is the minimum of delay in their appear-

ance. There are some countries where statistics are not published until a couple of years or more after the time to which they relate. Thanks to M. Amici and his staff Egypt is not one of these. The commerce of Egypt in 1879 shows, as was to be expected, a very appreciable advance on that of 1878. The imports amounted to 5,002,163*l.* E., and the exports to 13,439,059*l.* E. The excess of exports thus amounts to 8,436,895*l.* E. The exports were larger than in any of the last six years, with the exception of 1876, when they amounted to 13,561,286*l.* E. The great bulk of Egyptian trade is of course carried on with England, the total trade with which country being 11,219,683*l.* E., or 60 $\frac{3}{4}$  per cent. of the total 18,441,222*l.* E. As compared with 1874 our trade with Egypt has diminished relatively, its proportion of the whole being 70 per cent. in that year. The summary tables of imports and exports of various articles compiled from the returns by M. Amici are very interesting. Taking the imports first, there is an increase in cotton goods on 1878, but the value of the imports is much below that of the imports of 1875. The imports of iron of all kinds show a most remarkable reduction on those of the previous years, being only 51,119*l.* E., against 108,311*l.* E. in 1878, 105,797*l.* E. in 1877, 149,144*l.* E. in 1876, 112,466*l.* E. in 1875, and 171,683*l.* E. in 1874. No reason is given for this great diminution, but it may perhaps be attributed to the great rise in the price of iron last autumn. Of the exports the largest amount are cotton, 8,118,852*l.* E., and cotton seeds, 1,316,865*l.* E. The export of cotton shows a great increase on that of 1878, but it has not risen to the level attained in 1875 and 1876, when the exports were 8,853,635*l.* E., and 8,762,712*l.* E. respectively, and still less to that of 1874, when they amounted to 9,676,283*l.* E. There was a falling off in the exports of sugar, while the general badness of the European harvest in 1879 is reflected in the exports of wheat, which reached the value of 1,344,093*l.* E., a higher figure than in any previous year. M. Amici will pardon us for pointing out an error in the table on p. 9. The exports of wheat for 1878 are set down as only 92,086*l.* E., an obvious misprint for some higher number, for he himself on the next page remarks that the year of minimum exportation was 1874, when the amount was 143,511*l.* E.

#### IV.—Additions to the Library.

*Additions to the Library during the Quarter ended 30th September, 1880.*

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## JOURNAL OF THE STATISTICAL SOCIETY,

DECEMBER, 1880.

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*The INAUGURAL ADDRESS of JAMES CAIRD, ESQ., C.B., F.R.S.,  
PRESIDENT of the STATISTICAL SOCIETY, delivered on TUESDAY,  
the 16th of November, 1880.*

It is my duty, first of all, to express my warm appreciation of the distinction conferred on me by this Society, in electing me their President. When I look at the list of distinguished men who have occupied this chair, I feel deeply the responsibility that is laid upon me, to see that no effort of mine shall be wanting to carry forward the useful work of the Statistical Society. With the aid of the Vice-Presidents, Council, and Secretaries, and the distinguished Editor of the *Journal*, I trust that this object will not fail to be accomplished.

Your late President in his kind reference to my appointment spoke of it in connection with the questions affecting land, with which the Government and parliament would be called upon to deal. And as these questions are of specially pressing importance at the present time, I will venture to make them the subject of my inaugural address.

Mr. Brassey last year at this time, read a very interesting and instructive paper on Agriculture in England and the United States, and Mr. Shaw Lefevre, our previous President, delivered a most able address two months earlier at Sheffield, on the State of British Agriculture, and the causes of its depression. Since that time there have been published the report of practical farmers deputed from this country to visit America, also the careful letters of the correspondent of the "Times," and, finally, the able and instructive official report to the Royal Commission on agriculture, of Mr. Clare S. Read, and Mr. Pell, M.P., on the Agriculture of the United States and Canada. We have thus had presented for our consideration a carefully collected mass of facts and deductions, affecting the future prosperity and welfare of the most important single industry in this country, the land. Much consideration of these, coupled with a personal knowledge of both countries, and sources of private information in the United States, have led me to a conclusion different from that of the assistant

commissioners. They give figures to show that wheat cannot be grown in America in an average of years, and delivered in this country, much below 48s. a quarter. Some support to this view may perhaps be claimed from the recent rise of price. But that is altogether due to the famine in certain parts of Russia, whence, and from Germany, the supply of wheat to this country has dwindled to one-twentieth of what it was at this time two years ago, whilst, for the same reason, a considerable portion of the American shipments, which would have come to us, have gone on to Northern Europe. The actual prices of the last ten years, and the imports of wheat from the United States and Canada in the same period, show that price has very little control over the quantity sent forward. In five of these years the average price was 45s. 8d., and in the other five, 56s. 11d. The average annual importation at the lower price was 32 million cwt., and at the higher price 23 million cwt. The year of lowest price, 43s. 11d., was that of largest importation. A fall of 11s. a quarter, or one-fourth of the value, had no effect whatever in diminishing the volume. There is indeed an obvious error in making the average yield of wheat "over a long series " of years " in the United States the basis upon which to calculate the future value of the crop, or the cost of production. The great prairies of the west are only beginning to be tapped, a region immensely superior in natural fertility to the older cultivated lands of the east, where a yield of 12 bushels an acre has proved the average. The figures quoted by the Commissioners show an average of more than double that quantity in Manitoba. And in potatoes, while the yield of the Eastern States is stated at 80 bushels an acre, that of the prairie region is 300 to 400. It is not so much a question of price as of yield. The cost of production is found to be within 2s. a bushel. All that the western farmer, who owns his land, produces beyond what he consumes, and any wages he may pay, is gain to him. This gain will be increased by every additional bushel each acre produces, and by every increased facility, and consequent reduction in the cost of transport. The rapidity with which this takes place in America may be gauged by the number of tons carried from west to east over the leading railroads in 1868 and 1879, 31 million tons in 1868, and 72 million in 1879. This is an increase in twelve years of more than double in quantity, and it was accompanied by a reduction in the cost of transport of one-half. It is computed that the saving to the public in the whole of the United States by the reduction made in railroad freights, during the six years between 1873 and 1879, is equal to 90 millions sterling. "This," in the words of an American writer, "is the result of intelligence, skill, and "ingenuity, left free to work out the best possible results, un-

“hampered by other legislation than that of their own officers.” A halfpenny a ton per mile is now the average railroad charge, and this will be farther reduced by the competition of water carriage, for that country has every water advantage which nature can bestow, in its magnificent rivers and lakes. By the latter and canals wheat can be carried from Chicago to New York at half this rate, and by barges on the Mississippi from St. Louis to the seaboard, an equal distance, the same work is now being done for one-fifth of it. In the month of August last nearly 200,000 quarters of grain, about one-tenth of our total monthly supply, was so sent on these terms for shipment at New Orleans, where an immense and rapidly growing increase of business has arisen, through the deepening of the channel of the mouth of the Mississippi. This is a line of export only beginning; it draws its supplies from an earlier region than the north-west, much of which is shipped in steamers, and delivered in Europe before the harvest of Iowa or Minnesota has begun. But these great navigable rivers, the Mississippi and Missouri, draining a basin nearly as large as Europe, excluding Russia, must ever exercise a restraining influence on the cost of railway transport in America. Ocean freight also, instead of being increased by larger traffic, will be more likely to be lowered when cargoes are found for both outward and inward voyages. And steel ships are now being built for this trade, of 5,000 to 6,000 tons, which, with little increase of working expense, will be able profitably to carry cargo at still lower rates of freight.

There is thus no probability of prices being enhanced by an increased cost of transport. And when we turn to the area of production, and the quality of the soil with which European agriculture is now brought into competition, we can hardly fail to see the extraordinary advantage possessed by the New World.

A line drawn from Hudson's Bay to the mouth of the Mississippi, would embrace an area, east of that river, as large as Europe, as varied in climate and production, and in mineral wealth. From the Mississippi westward to the Pacific, is a region nearly twice that extent, one-half of which is believed to be capable of being made arable, and the other half is to a large extent fit for grazing cattle. The climate admits of the most varied kinds of produce, cotton, sugar, and tobacco in the south; Indian corn, wheat, and potatoes in the north and west. Already one-half of all the cotton used in the world is produced here, and there is hardly any limit to its possible extension. The production of the various kinds of corn in the United States alone is now six times that of the United Kingdom. Their increase of acreage under wheat, between last year and this, is more than all the breadth we grow. Including the vast plains in western Canada, between the Red River and the Rocky Mountains



south of 55° north latitude, proposed to be traversed by the Canada Pacific Railway, not one-tenth of the land believed to be arable has yet borne a crop. The vigorous surplus population of all Europe, for many generations, will thus find room in these western prairies.

The quality of the soil is its next grand feature. "In the Great North West," say the Royal Commissioners, "the country so recently opened to the over populated countries of the Old World, there is no forest to subdue, or scrub to uproot. The whole is one vast plain, more or less fertile, which can be converted into a grain field by the simple operation of two shallow ploughings. The soil around Portage la Prairie is a rich black loam, light of tillage, yet sufficiently retentive to withstand severe drought. In many places there appeared no variation to the depth of 3 feet. In some spots the land is swampy and low, but a few main dykes would dry many hundred acres, and with a soil so friable no drainage for surface water could possibly be required. This vast region is called by some the future wheat granary of the New World. Much has been said against the long and severe winter; but it is a crisp dry cold that is not unpleasant, and with the first sharp frost and fall of snow the roads that were before impassable become excellent highways for the cartage of timber and grain. To the young, the vigorous, and the courageous, who cannot get a comfortable living in England, it offers a home that will soon provide all the necessaries of life, and in a few years of steady and well directed toil will probably ensure a competency, and possibly a moderate fortune."

A recent American writer describes the soil of the great basin of the Mississippi to be of the same nature as that of the most fertile plains of Asia and Europe, and this receives some confirmation from an analysis of four prairie soils, brought by me twenty years ago from Illinois, and then examined by Professor Voelcker. He found them very rich in nitrogenised organic matter, more so than any soils of which he had record, a peculiarity which, with their beautiful state of division, distinguished these soils so favourably. This fertile ground, friable and free from boulders, loose stones, or stumps of trees, nearly level, and thus offering great facility for railway construction, is also most favourable for machine cultivation. No manual labour except to direct the machinery need be employed from the time the seed is sown till the grain is placed in the railway or on shipboard. And, marvellous though the richness of the soil of this vast central region is, that is not the only gift of nature it possesses, for much of it is underlaid by deposits of coal and iron, far exceeding in extent the great mineral fields of the eastern States.

Such is the magnificent country now brought within compa-



ratively easy reach of the more populous States of Europe, affording not only an outlet for those of their people who desire to emigrate, but bringing, by the aid of railway and steamship, the working man of the old countries into close contact with the abundance of the new. A barrel of flour and a barrel of pork or beef, 500 lbs. in weight, a year's very full supply for a working man, can now be transported from Chicago to Liverpool at a cost of little more than two days' wages for an artisan, or four days' of a labourer. The mechanic of Lancashire can thus, by the expenditure of a few days' pay, place himself and his family on an equality in regard to his food supply with the mechanic of Illinois or Wisconsin. To the consumers this is an enormous benefit, but to the producers of food in this country, and Europe generally, a fact of momentous import, with which they must prepare to reckon. Upon this contest agricultural Europe enters heavily weighted with large standing armies, heavy taxation, differences of language and laws, impeding that freedom of communication and facility of movement which is possessed by a competitor who is free from all such embarrassment.

Let us first try to get a clear conception of the products in which that competition is most likely to be successful. Articles of easy and simple cultivation, which can best bear rough handling and long carriage, which can be grown on a grand scale, and be cheaply cultivated and manipulated by machinery, such as wheat and Indian corn, may be expected to be the earliest exports. The following figures of imports to this country are instructive :—

*Quantities and Value of certain Articles of Food Imported in 1870 and 1879.*

	1870.			1879.		
	Value per Head.	Number or Weight.	Total Value.	Value per Head.	Number or Weight.	Total Value.
	£ s.		£	£ s. d.		£
Live animals { cattle sheep	18 —	} 872,000	4,298,000	21 16 —	} 1,192,000	6,892,000
	— 34			— 47 8		
	Per cwt. s. d.	Cwt.		Per cwt. s. d.	Cwt.	
Bacon and hams ....	62 2	567,000	1,769,000	34 4	4,917,000	8,880,000
Beef .....	42 9	215,000	461,000	47 8	812,000	1,937,000
Meat, fresh, salted, } and preserved.... }	56 —	115,000	327,900	58 —	721,000	2,130,000
Butter .....	105 —	1,159,000	6,800,000	101 6	2,045,000	10,380,000
Cheese .....	55 6	1,041,000	3,083,000	42 6	1,789,000	3,824,000
	Wheat per Cwt.					
Corn of all kinds ....	10 6	74,103,000	34,170,000	10 6	136,743,000	61,261,000

The article which has increased the most is corn, an increase, in weight, nearly nine times that of all the increase in cattle and pro-

visions. In wheat alone the quantity has doubled in ten years, being in a ratio three times greater than is required by the increase of our population, and nine-tenths of that increase is from America. The price at the end of the period was the same as at the beginning. Next to corn is bacon and hams, the product of Indian corn, in which form the prodigious American crop of 1,500 million bushels is to a large extent exported to Europe. The increase of pork in its various kinds was in ten years ninefold, notwithstanding a gradual fall in price from 62s. 2d. per cwt. to 34s. 4d. It is in these two kinds of corn, wheat and maize, the crop of which in the United States alone yielded 2,000 million bushels in 1879, that we must look for the earliest and most lasting competition. Had it not been for the succession of bad harvests here the price of imported wheat would have fallen, probably somewhat in proportion with that of the meat produced by feeding pigs on Indian corn. The decline in the home production of wheat and pigs is in fair proportion to the abundance in which these have been poured in upon us, and which, for that reason, have become least remunerative.

But notwithstanding a considerable rise of price in live animals and in meat, and the maintenance of a good average value in dairy produce, the imports of these have not increased in anything like the same scale of magnitude. These are the products in which there is most risk of damage by long transport, and upon the preparation of which most skill and labour must be bestowed. Large though the foreign importations of these appear to be, their total amount hardly yet affords two ounces per head per day to the population of the United Kingdom.

Wheat and Indian corn are the crops of easiest cultivation and readiest transport upon the prairies of the West. The agriculturists of the eastern States of America see this, and have yielded to an inevitable fate, which threatened ruin, but has resulted in gain. Driven by the more cheaply produced crops of the West from the growth of wheat, they have turned their whole efforts to the production of vegetables, hay, fruit, poultry, and the dairy. The chief impulse to this change was given by the reduction in the cost of transport from the West, made between 1865 and 1875, in which last year the value of the new agricultural products of the small State of Massachusetts was nearly 8 million dollars greater than in the first. Though the change has been beneficial on the whole, there are nevertheless many deserted farms in the State; there has been in many places a decrease in the rural population, and much land formerly cultivated would "not now bring the cost of the stone walls with which it is enclosed." This has happened in the more sterile parts of the country, and those most remote from railways.

Since 1875 the cost of transport has been still further reduced,

so much further as to bring our English counties under the same influence of Western agriculture as was Massachusetts in that year.\*

We are brought face to face with the same difficulty now which they encountered then, and if we meet it in the same way we may hope for an equal success. And we must not overlook the immense gain to the consumers in this country by a permanently lower range of the price of corn. The cost of moving corn from the prairies to this country has been reduced by fully 9*d.* a bushel, which on the consumption of corn of all kinds in the United Kingdom is a gain to us of 10 millions sterling, much of which will be spent on other articles of food which will be produced at home. The great corn fields of America will prove an advantage to us nearly as great as to our brethren on the other side of the Atlantic, if we accept from them what they can produce more cheaply, and devote our attention more exclusively to products with which they cannot so easily compete. This is no new doctrine of mine. Thirty years ago I pointed out, in my letters to the "*Times*," the gradual change which free trade would bring about in the food of the people of this country, and that as they grew in better circumstances, their expenditure on articles the produce of grass and green crops, butcher's meat, butter, cheese, and milk, would become many times greater than that in bread, while the foreign supply of the latter would increase in the most rapid degree. Again in 1859 I enforced this view when, after a visit to the United States and the western prairies, I for the first time obtained an impression of the magnitude and fertility of the vast central plains drained by the Mississippi and Missouri, the development of which was thrown back ten years by the revolt of the Southern States. In 1868, in a paper read by me to this Society, I pointed out our growing dependence on America for wheat, and her vast power of expanding the supply. In the second year after the close of the war, 1867, the imports of American wheat and flour were 5 million cwts.; in 1879 they were upwards of 44 millions, an increase in fourteen years more than eightfold. During the same period our own agriculture, partly from the pressure of this growing competition and partly from unfavourable seasons, shows a decline of more than 20 per cent. in wheat, and 10 per cent. in oats, while green crops and grass have increased in nearly like proportion.

Our system of agriculture is thus already beginning to accommodate itself to the change which American competition will certainly render necessary. In the northern and western parts

\* A few days ago the "*Times*" gave a description of recent railway shipping appliances in New York, which alone would make a fresh saving of 1*d.* a bushel on the cost of transport.



of the country where live stock predominates over corn, and where the labour bill is comparatively moderate, the effects of this competition are little felt, and the suffering that has arisen of late years has been more the result of ungenial seasons, and grazings unthrifty for the herds and flocks. In the corn districts the loss has been greater, because not only were the crops inferior but the prices were low, whilst the labour was very costly. In the least fertile tracts of poor clay, where every operation is expensive, and the land is unkindly for grass, it must either go out of cultivation, or be turned to some other purpose than that of growing food. It is hopeless to expect that such soils can maintain their old position. Indeed, nothing but the greatest prudence and freedom of action will carry our landowners and farmers, on even the better class of corn lands, through the earlier years of the competition on which they are entered.

How is this freedom of action to be attained? What now hinders it? Entails, settlements, and mortgage, costs of transfer, and uncertainty of title. The early principle of entail was that the fee of the estate should be incapable of being mortgaged, so that each succeeding owner should enter upon it without incumbrance. This kept the estate solvent; but it soon became necessary to depart from this principle in order to make provision for the widow and younger children. This has been further extended by the need to find money for permanent improvements, such as roads, buildings, and drainage. Every new charge complicates the title, whilst at the same time diminishing the free income. When cost of management, repairs, and renewals of buildings, rates and taxes, family provision and interest of debt are deducted, the gross income, thus reduced by one-half to two-thirds, has to bear the entire weight of any reduction of rent rendered necessary by a permanent drop in prices. A man with 5,000*l.* a-year of gross rental, has probably not so much as half of it to spend, and if his rental is diminished by 10 or 20 per cent., the whole of this loss falls upon the narrow margin left to him. The fixed charges, including the interest of debt, are not affected.

The intolerable burden thus cast upon the life tenant has been attempted to be lessened and shifted by many legal devices. The most ingenious one was that devised by Sir Robert Peel on the repeal of the corn laws. By his advice the legislature agreed to advance to landowners, for permanent improvements, certain large sums which were to be redeemed in twenty-two years by half-yearly payments, which should at the close of the term have repaid the loan. The condition upon which the loan was in each case granted was that the lender was to be satisfied that the improvement contemplated would more than repay the half-yearly instalments.



This principle has been carried on by the Land Improvement Companies, and much good by it has been effected. It was greatly aided by the general advance of prices up to 1875, through which a gradual and not inconsiderable rise of rent was obtained. But a succession of bad seasons and diminishing prices, with farms thrown on the hands of their owners, many of whom had not the means of raising capital to carry them on, and the general agricultural collapse which led to the appointment of a Royal Commission of inquiry, produced soon afterwards the Land Bills of Lord Cairns, which, in consequence of the change of Government, have been held in abeyance.

These important measures have been prepared with great care and consideration, with all that knowledge of the law and lucidity of arrangement which their distinguished author commands, and with full recognition of the necessity which has arisen for giving as much freedom to deal with the land of this country as is compatible with the principle of entail and settlement. And if that principle is to be maintained these Bills give probably as much facility to landowners as the system admits. But the whole evil will not then be removed. That evil is "limited ownership." The transfer of land is hampered on every side by the devices required to maintain collateral rights, and for this object the land of this country is loaded with what Lord St. Leonards described as the "complication of our law of real property." The transfer of land cannot be made as easy as that of America until this is removed. And it is with American land that we are now brought into such direct competition, that I believe it will be found impossible, in the interest of any one, to maintain for any length of time the complication of settled landed property.

The tenant farmer is the first direct sufferer from this competition, but that will very speedily fall on the landowner, whose rent begins when, but not until, all the costs of production are paid. It is therefore most of all the interest of the tenant for life, the limited owner, that his land should be freed from all that hinders him from dealing with it in the most advantageous manner.

Under Lord Cairns's Bills the limited owner would have power to sell (1) in order to pay off debt, or (2) to raise money for improvements. The money must then pass to trustees for these purposes, and from them into the hands of the lawyers, and possibly the court. There need not be very heavy costs in using the money simply for the purpose of paying off debt. But neither landowners, nor trustees, can proceed to invest the money in land improvements, until they have received the sanction of the land commissioners. Every step beyond the order to sell must thus be taken, not by the man who has a direct interest in the economy

and success of the operation, but by persons who have no such interest.

Writing thirty years ago on this subject, I said, "Much of the land of this country, more than two-thirds of the kingdom, is in the possession of tenants for life, so heavily burthened with settlement encumbrances that they have not the means of improving the land which they are obliged to hold. A neglected property in this country, the nominal owner of which is incapable from his embarrassments to improve it, will not be looked at by tenants of capital; and tenants of limited means on such a property must be overborne in unrestricted competition with farmers of capital, cultivating land where every convenience and accommodation which an unencumbered landlord finds it his interest to give has been supplied." The competition has now become infinitely more serious, while the encumbrances have not diminished. The country has to carry a national debt of near 800 millions, and as it would be a moderate estimate to take the mortgage debt on landed property at one-third of its value, the landowners have to bear a special burden in the annual interest accruing upon several hundred millions besides, in addition to their full share of the public debt.

Though the Three per Cents are at par, and the general rate of interest for some years has been so low as to show a rapid accumulation of capital, no reduction of interest on loans for landed property has been effected. The mortgaged landowner is so completely shackled that he can make no stand against this, and the transaction between him and the capitalist is so environed by questions of title and collateral interests, requiring legal investigation, that they cannot directly approach each other. Over a considerable extent of England at this time there is as much need of a Landed Estates Court, as there was in Ireland in 1849; many large properties would no doubt be broken up by it, but the parliamentary title which could then be given would render future dealings with the land easy and inexpensive, and would after a time lead to an enhancement of its value.

This has now become a pressing question for "limited owners," much more in their own interests than those of any other body of the community. In regard to the welfare of the public, the fact that this country can now depend on foreign lands for a constantly increasing proportion of its food has vastly diminished the national inconvenience occasioned by entail and settlement. That which would be best for all would be entire freedom to the voluntary action under which wise self-interest would fit all efforts to their best results. Simplicity of title is the first step to facility of transfer. There would be abundance of land for sale if

the restrictions that impede its transfer were removed. Whether that is to be done by an encumbered estates court and a parliamentary title, or by compulsory registration of title, with a short and definite limitation of challenge, is a question for our most capable law reformers. But when the transfer of land in this country shall be made nearly as cheap and easy as the transfer of stock in the money market, a new spirit will be introduced which would elicit individual ingenuity and enterprise, give additional value to the land itself, and rapidly stimulate improvement.

I do not feel it necessary to refer to the special circumstances of Ireland at this critical juncture, or to the further measures that may be required there in regard to the tenure of land. A very competent commission is engaged in sifting the whole subject of the relations between landlord and tenant in that country, the result of which will doubtless enable the legislature to deal with it in a spirit of mutual justice and conciliation. Those of us who can remember the condition of Ireland in the terrible years of the potato famine between 1846 and 1850, will note a remarkable distinction between that period and this. In the counties where the famine was worst, I found, in 1849, that even the finest quality of land was deserted in many cases by the tenants, owing to the pressure of rates. The difficulty then was to retain the old tenants on the land; their anxiety now is to keep possession of it. Apart from the obvious motive which they have been encouraged to entertain of becoming the owners of their farms on easy terms, the returns of the Irish farmers during the last ten years have been much more favourable than those of the sister countries. They have rapidly diminished their dependence on wheat, the acreage of which has decreased more than one-third. They have been placing their reliance more on the rearing of cattle and the produce of the dairy, for both of which the prices have been good. The small farms, requiring little expenditure of hired labour, have enabled them to escape the growing labour bills of the larger farms of this country. For similar reasons the west of England and most parts of Scotland have not suffered with anything like the severity of the more purely corn districts of England, whose dependence is chiefly on wheat, and where the system of large farms is necessarily accompanied by increasing labour bills. In seven out of ten years the seasons have been wet and chilly, and this has pressed with special severity on the crops which thrive best with abundance of heat and sunlight. South of the Humber, and east of Derbyshire to Dorset, the loss of tenants' capital from this cause, over so lengthened a period, is unprecedented in our time. It has been borne in comparative silence, for men when they find their means shrinking away are not prone to speak of it. But there are few parishes in all that region



of country from the Humber to the Solent in which farms have not been surrendered to their owners, and some in which farms are absolutely tenantless. The local bankers, for their own protection, have been compelled to withhold credit, and tenants with diminished capital and restricted credit have found it necessary to retire from large holdings, and either take smaller farms or quit the business. A local journal in one of the southern counties, in September last, contained over one hundred advertisements of auction sales of farming stock, within its own district, embracing 55,000 acres of land given up by the tenants, some of which had been relet at a great reduction of rent, but most remained on the owners' hands. In every county one meets with instances of considerable estates with six or eight farms thrown on the landlord's hands, and certain localities can be named where, within a mile or two of thriving towns, there are hundreds of acres of clay land entirely deserted, and on which there has not been a furrow turned for two years. It is in such circumstances no longer a question of reduction of rent, or of outlay on improvements. The tenants have left the neighbourhood, employment of labour has ceased, and the landlords and their agents, even if they had the means, can have little hope of gaining a profit where a hard-working farmer has failed. The entire area of corn in Ireland is not more than half of that of the eleven principal corn counties of England upon which this heavy loss has fallen, and if measured in money, the loss of capital in Ireland occasioned by the seasons would bear no comparison with that in England.

Circumstances have thus forced upon us changes which can no longer be postponed. These, by legislative measures which will tend to break up embarrassed estates, will gradually place the land in the possession of owners who can act upon it with freedom. There will then be a large increase of landowners cultivating their own land, and especially will this be so if the same facilities for purchasing it as have been offered in Ireland are, in justice to them, also offered to the farmers of England and Scotland.

We shall find landowners selling a portion of their property, in order to become themselves the cultivators of the rest with the capital thus acquired, and the smaller landowners, to whom they sell, vieing with them in the improvement of their new farms, neither being hampered with the restrictions on cultivation generally imposed between landlord and tenant. Room too will be found for peasant proprietors, where the agricultural labourer may in favourable localities get a foothold on the land of his own country. I should have little fear of a prosperous result to well applied industry on this principle, if due care is taken that no Government loans for such an object be granted except where the climate is favourable,



and the land of good natural quality. On such holdings there is ample room for good business in eggs and poultry, early and late vegetables and fruits, and milk and butter, upon all of which the profit will be in proportion to the skill and labour employed in their production. The system would not only give free play to skilled labour, but would also elicit the action of the higher qualities with which man is endowed, and which are too apt to lie dormant when he works under a mechanical routine.

There are some things for which we do not require legislative help. And in one point of much importance I am glad to observe that the Railway Commission are watching the freight charges upon railways to see that the farming interests in this country are not unfairly dealt with. During the last ten years the competition in America has reduced the freight charges by one-half, without detriment to the shareholders, and with enormous advantage to the public. A similar reduction here might be found equally successful.

In reviewing the statements in this paper, it must be obvious that a great change is being effected in the agricultural condition of this country and its people. The narrow bounds of these islands are being rapidly enlarged. By the aid of the improvements made in the adaptation of steam and steel to locomotion, the Atlantic, and the great lakes and rivers, and fertile plains of America, are becoming at once the cheapest lines of transport for the teeming riches of the West, and also the fittest links for connecting the mutual interests of the English speaking race. Of all Western peoples ours is already the most numerous; and when we contemplate the further spread of the English language over North America and Australia, and the habits of order, instincts of self-government, and love of liberty which are the inborn characteristics of the Anglo-Saxon race, and the voluntary action with which this beneficent conquest of nature is being conducted, we may well feel confidence in the future. Holding by natural position, and firm adherence to free trade, the post of intermediary between the Old World and the New, we shall be the first to reap the benefits of the rapidly extending commerce which this fuller development of so much of the earth's resources is bringing to our shores.

Twelve years ago, in addressing this Society, I described the contents of a little blue book which I held in my hand, the first number of the *Agricultural Returns*. Under Mr. Giffen's care, that annual book has doubled in size. The prefatory remarks, introduced by Mr. Valpy, have been continued and extended, many comparative tables have been introduced, and much new matter has been added. It has thus become not only a useful guide to the legislator as well as the landowner and farmer, but to the importer and

purveyor of food, and to all persons interested in its distribution and consumption. Those who took an interest in obtaining from parliament the means of collecting these returns, will join with me in expressing our warm appreciation of the increasingly useful and instructive manner in which they are now placed before the public.

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PROCEEDINGS *on the 16th* NOVEMBER, 1880.

Dr. GUY said that as a former President of the Society it was his duty to request the meeting to return a hearty and sincere vote of thanks to the President for the interesting and valuable address which he had just delivered. When their President began his paper he (Dr. Guy) must confess to have been somewhat saddened and depressed by the prospects held out to British agriculture; but by degrees the clouds cleared away, and he took comfort in the thought that many things which had worried their ancestors no longer alarmed themselves. There was a time when they were extremely afraid lest the country might become over populated. That fear had passed away. Then again we were overwhelmed with apprehension about the national debt, when it was but a trifle compared with its present amount. That anxiety too had passed away; and we might indulge the hope that the same fate awaited the gloomy thoughts which the first part of the President's paper must have conjured up. England, let us hope, would survive these difficulties as she had those of times gone by. He would conclude by asking them to give to their Chairman the hearty vote of thanks which his address so richly deserved.

(The vote of thanks was given unanimously and with applause.)

The PRESIDENT in replying said that he felt deeply indebted to the meeting for the reception which had been given to his remarks. He had read his paper under a sense of duty, because he thought that the extent of competition to which the agriculture of this country was now exposed was not so thoroughly understood as it should be; and he felt quite sure that a matter of this kind should be seriously looked in the face in order that those interested should make for themselves the best arrangements that they possibly could to meet it with success.

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NOTE on the TENTH CENSUS of the UNITED STATES of AMERICA.  
By F. J. MOUAT, M.D., F.R.C.S., *Vice-President and Foreign Secretary of the Statistical Society.*

[Read before the Statistical Society, 16th November, 1880.]

CONTENTS :

	PAGE		PAGE
Historical Retrospect .....	574		
Chief Changes introduced in the present Census .....	576	APPENDICES.	
Disturbing elements in estimates of future increase of population. ....	578	I.—Individual Schedule of Products of Industry .....	588
Cost of Censuses.....	581	II.—Wealth, Debt, and Taxation .....	590
Some details of the Tenth Census Schedules.....	582	III.—Schedule of Wool Manufacture .....	593
The Census Bureau at Washington .....	586	IV.—Mortuary Statistics .....	597
		V.—Sanitary Authority .....	601

As questions connected with census operations are, at the present moment, of much interest and importance to us, I deemed it my duty during my recent holiday in the United States, to visit the Census Bureau at Washington, and to ascertain what is doing and has been done in relation to the census of the present year in the great Transatlantic Republic.

Among the printed transactions of the Society are some interesting papers on the statistics of the population of the United States as contained in the seventh and eighth censuses, and a very brief *résumé* of the figures abstracted from the ninth census.

The tenth census has been taken in the present year as respects the population, and is in progress with relation to the wealth and industry of that great country. Hence a brief note on the subject may not be without use, even before the returns are worked out and the results are published for general information.

In March, 1879, the senate and house of representatives of the United States, in congress assembled, passed an Act for taking the tenth, and subsequent censuses of the vast territories under their federal rule.

The 1st June of the present year was the date fixed for the operation, which was declared to be a "Census of the population, " wealth, and industry of the United States."

The English, Irish and Scotch Acts for our next census in 1881,

are confined to the first point, although, why three separate Acts should be needed for a purpose in which strict uniformity is essential from an imperial point of view, is not very intelligible. An additional clause or two as to the agency to be employed in the cases of Scotland and Ireland, could easily have been included in a single Act, which would then cover the whole ground.

But, be that as it may, the parliament of Great Britain can legislate for each division of the United Kingdom, or for all of them collectively in matters of strictly imperial concern.

The federal government has, on the other hand, no direct control over matters of internal legislation, and all that constitute strictly State Rights, in the different sections of the great confederation. None of the separate States have any special agency or provision for the collection of information for a general national object, and only three or four of them for even State purposes.

Hence those matters which are of paramount importance to the country as a whole, are included in a measure with which they have no necessary connection. Moreover, it would probably be impossible to obtain a general consensus of the individual States and territories in securing uniformity either in the collection, arrangement, or details of the facts required, except by a federal Act covering the whole.

The American Act gives minute directions as to the agency, penalties for non fulfilment, and all other subsidiary matters connected with the census, arming the Superintendent of the Census with full power to give effect to the Act, under the general control of the Department of the Interior, to which his bureau is directly subordinate.

A supplementary amending Act was passed in April of the present year, modifying some of the provisions of the first Act, and making arrangements for the correction of errors in the original returns.

The first census of the United States was taken in 1790, under the authority of an Act of Congress passed in that year. It was confined to the simple enumeration of the people under six different categories, and was taken by the marshals of the several judicial districts. The counting commenced on the 1st August of that year, and was completed in nine months.

In 1800, a new Census Act was passed, placing the direction of the enumeration under the Department of the State, and enlarging the field of inquiry to include age, and the name of the county, parish, township, or city where the families resided. The censuses of 1810 and 1820 were taken under the provisions of the same Act, and ran in the same lines. An attempt was, however, made in them to procure information regarding the industry and manufactures



of the country; but the results were of little or no value, and embraced only a small portion of the States.

In 1830, no provision was made for the collection of industrial statistics.

In 1840 the field of inquiry was again considerably extended, and included the number of persons employed in agriculture, mining, manufactures, and commerce, and added educational statistics. Some statistics of industry were again essayed, with but partial success.

The census of 1850 inaugurated a new era in the conduct of these operations—the result of much public discussion of the matter. A census board was established to procure forms and frame regulations, a census office was added to the Department of the Interior, and the special office of Superintendent of the Census was created. Under the Act of May, 1850, the three succeeding censuses were taken, the last under the able and energetic direction of General F. A. Walker, to whom the conduct of the present census has been entrusted.

Those of 1850 and 1860, in addition to the enumeration of the people, included statistics of the productions of agriculture, social statistics, embracing the value of real and personal property, the amount of taxes assessed, educational statistics, pauperism, crime, the cost of labour, and, under the head of religious worship, the number and value of the churches, and the number of people each could accommodate, the products of industry, and mortality statistics. Detailed schedules for all these objects were prepared and issued.

The ninth census, that of 1870, was taken under the provisions of the Act of 1850 above referred to, of which an abstract is given in the introduction to the census report of that year. A glance at the subject, and a knowledge of the agency employed in collecting this heterogeneous mass of figures, shows how incomplete and imperfect such a census must of necessity be, and how unreliable some of the results were.

The superintendent had no power to change the law, which it was his duty to administer; but his patient industry, singular analytical skill, and unwearied searching out of sources of error, with a view to their correction, minimised them as much as possible, and produced a report of great interest and value from the chaotic material at his command.

When he again took active charge of the office in 1879, which he had continued to hold without salary since the completion of the census of 1870, General Walker exposed, with unsparing hand, its errors and imperfections, as the following extract from his report to the Secretary of the Interior, shows:—

"The work of the census office since its organisation has been of two distinct kinds:—

"First. Work in preparation for the enumeration, which is by law to commence on 1st June, 1880.

"By the statement of the case, none of the work of this character yields statistical results. It is in no part definitive, but is purely preliminary, embracing the preparation of schedules, the subdivision of the country into supervision districts, the canvass of the geographical conditions of enumeration in the several sections for the purpose of finding the rates of compensation, so as to secure at once the highest efficiency and the highest economy; the entertaining and answering of thousands of applications for appointments; and, finally, the conducting of the large correspondence which the organisation of a service of such popular interest, brings upon the officer charged therewith.

"It has not, however, been upon work of this class that the greatest part of the labour of the census office since its organisation has been bestowed.

"Second. The collection of certain classes of statistics for the current year, has been going on since 1st June.

"There is, by the Act of 1879, as by that of 1850, both a census day and a census year. The census day is 1st June, 1880; the census year comprises the twelve months ending at that date. The census day is the day on or for which the count of inhabitants is required to be made, and certain facts relating to the status of population and industry to be obtained; the census year is the period for which certain other classes of facts relating to the movements of the population and the operations of industry, are required to be taken.

"But, while the Act of 1879 and that of 1850 are alike in thus instituting a census year for the movements of population and industry, as well as a census day for determining their status, the two Acts differ widely in the agencies they establish and the methods they prescribe for obtaining those results.

"By the Act of 1850, all the statistics to be obtained for the census were to be collected by the regular enumerators in their house to house canvass of their several districts. The facts relating to mining, to the fisheries, to agriculture, to manufactures, to the mortality of the population, and to many other matters of social and industrial interest, were to be ascertained and reported on by the same officers who made the count of the population.

"The inadequacy and the inaccuracy of the statistics thus obtained were sometimes positively discreditable, and even disgraceful to the census, their only possible effect being to mislead the people and misrepresent the country, and led to the introduction of provisions into the Act of 1879, by which the census office is authorised to withdraw certain classes of statistical inquiries from the ordinary enumerators, and place them in the hands of experts and special agents.

"In the spirit of this enlightened function, the superintendent has carefully canvassed the field of investigation, with a view to ascertaining what parts of the field promised to yield results to such special inquiries over and above what might be expected to be obtained through the ordinary course of enumeration, to repay the necessarily higher cost of the service."

The special investigations entrusted to experts relate to the fisheries, the mining industries, power and machinery used in manufactories, the defective, delinquent, and dependent classes, the social statistics of cities, the statistics of special branches of agriculture, and the mortuary statistics.

The names of the eminent experts selected, are a guarantee of the value of the results which may fairly be expected from this, the greatest advance yet made in any country for such a purpose.

The only one of the above subjects which interests us with

reference to our own approaching census, is that of mortuary statistics.

General Walker pointed out the extreme disadvantage under which the United States laboured in relation to its vital statistics, from the absence of an efficient system of registration of births, marriages, and deaths, and indicated its serious economic, social, and political results. With a view to remedy some of these defects, the provision for obtaining vital statistics in the last Act differs from that of 1850, by allowing the registration of deaths, under State or municipal authority, to be taken by the superintendent of the census for the returns of enumerators, and by the census office, with the power of supplementing strictly official agencies by information obtained from other sources. For this latter purpose, small model registers, each containing a record of twenty-four deaths, with a statement of the causes of death, the sex, age, occupation, and nationality of the deceased, were prepared and sent to every physician and surgeon whose address could be ascertained.

These gentlemen were requested to fill in a record of all the deaths occurring in their practice during the census year. Nearly 100,000 of these registers were distributed, and the response of the medical profession in the United States is said to have been most gratifying, as might have been expected from a learned body so thoroughly alive to the value of figures as exponents of facts, in relation to the great problem of life and death, in the solution of which they are constantly engaged.

Great and important as this advance undoubtedly is over their former practice, no one is better aware than the present gifted superintendent of the United States' census, how very inferior it is in administrative and scientific value, to the admirable system worked out by our highly honoured colleague, Dr. Farr, and imitated by the most advanced nations of Europe.

The population of the states and territories constituting the United States, as ascertained in each succeeding census from 1790 to 1870, were as follows:—

Year.	Population.	Increase per Cent.
1790.....	3,929,214	—
1800.....	5,308,483	35·10
'10.....	7,239,881	36·38
'20.....	9,633,822	33·06
'30.....	12,866,020	32·51
'40.....	17,069,453	33·52
'50.....	23,191,876	35·83
'60.....	31,443,321	35·11
'70.....	38,558,371	22·65

In the report of the eighth census, the forecast for 1870 was 42,328,432, whereas it was really more than  $3\frac{1}{2}$  millions less, of whom the coloured population represented rather more than half a million. General Walker has shown in the introduction to his report of the census of 1870, to what the decrease was really due.

The chief disturbing element in all these calculations is probably the coloured population.

The following particulars, extracted from the introduction to the report of the eighth census of the United States, are necessary to a right understanding of the question :—

*Census of Slaves and Free Colored.*

Census of	Free Colored.	Increase.	Slaves.	Increase.	Free Colored and Slaves.	Increase.
		Per cent.		Per cent.		Per cent.
1790 ....	59,466	—	697,897	—	757,363	—
1800 ....	108,395	82·28	893,041	27·97	1,001,436	32·23
'10 ....	186,446	72·00	1,191,364	33·40	1,377,810	37·58
'20 ....	233,524	25·23	1,538,038	28·79	1,771,562	28·58
'30 ....	319,599	36·87	2,009,043	30·61	2,328,642	31·44
'40 ....	386,303	20·87	2,487,455	23·81	2,873,758	23·41
'50 ....	434,449	12·46	3,204,313	28·82	3,638,762	26·62
'60 ....	487,970	12·32	3,953,760	23·39	4,441,730	22·07

Showing a gradual decrease in the three last decades, the small increase in 1840-50, being due to the admission of Texas to the Union in 1845.

In the forecast of the future, the estimates have been based on the assumption that the rate of increase of the census of 1860 would continue in the succeeding decade or until the present year, and that the rate to the close of the century for the colored population would decrease to 20 per cent.

Estimating then the probable increase of the whole population, white and coloured, at a mean annual rate of 3 per cent., the subjoined table contains the forecast made in 1860 :—

Year.	Free Colored and Slaves.	Aggregate of White and Colored.	Percentage of Colored.
1870 .....	5,421,900	42,328,432	12·81
'80 .....	6,618,350	56,450,241	11·72
'90 .....	7,942,020	77,266,989	10·28
1900 .....	9,530,424	100,355,802	9·50

The transition from slavery to freedom, after the civil war, of some four millions of Africans, had been too short a time in operation to permit of any accurate deductions being drawn regarding their increase, decrease, and social condition generally. So long as



they were not free agents, and were practically confined to parts of the States in which they were to a great extent acclimated, and in which their fluctuations could be determined with some approximation to precision, the data regarding them in the census returns, may be accepted with some degree of confidence.

Another disturbing element is the increase of the number of Chinese, who in 1870 amounted to 63,254, and who have been increasing ever since, slowly it is true. It is likely now to be checked permanently.

The present census will throw much light on all these questions, and on some of the unsolved problems of the admixture of races.

In the Eastern possessions of Great Britain the mixed races begin to decrease and disappear in the third generation, from scrofulous degeneration and other causes, moral and physical.

The conjectured increase of the coloured population from a little more than 4 millions in 1870, to  $9\frac{1}{2}$  millions in 1900 seems to me, therefore, to be likely to prove an over calculation, although the estimated annual rate of increase is scarcely one-third of the lowest of the figures mentioned above. My own impression is that they will obey what appears to be the natural law as at present understood and determined, and as expressed in one of the American reports, where it is said that:—

“The extinction of slavery, in widening the field for white labour and enterprise, will tend to reduce the rate of increase of the coloured race, while its diffusion will lead to a more rapid admixture, the tendency of which, judging from the past, will be to impair it physically without improving it morally.”

And again the same authority remarks:—

“With the light before us, it seems therefore rational to conclude that we need not look forward to centuries to develop the fact, that the white race is no more favourable to the progress of the African race in its midst, than it has been to the perpetuity of the Indian on its borders, and that, as has been the case in all other countries on this continent where the blacks were once numerous, the coloured population in America, whether either free or slave, it must, in number and condition, be greatly subordinate to the white race, is doomed to comparatively rapid absorption or extinction.”\*

Much light however will doubtless be thrown on all these ethnological points in the census now taken. It is difficult to over-estimate their importance in the future of the great republic. I rather incline to the former than the latter view. In many of the descendants of the coloured people whom I saw, all trace of the African admixture had disappeared, and it required very close observation to perceive that it had ever existed.

The fluctuations of immigration into the United States constitute another disturbing element in all estimates of their population.

The numbers as ascertained from the customs returns from 1820

\* Eighth Census of the United States in 1860; introduction, pp. 11—12, 1864.

to 1878 inclusive, fifty-nine years, were nearly 10 millions, or about 166,000 a-year, or taking the half century to 1869 inclusive, about 143,000 annually.\* These figures are liable to considerable correction, by the addition of immigrants who find their way to the States through or from Canada, and by the deduction for return emigration, as well as merchants and visitors of all classes, for whom a deduction of 14.5 per cent. is believed to be a correct approximate figure.

Of the vast majority of the immigrants who go out as settlers, certainly not less than 90 per cent. are at the active period of life, and all more or less fitted to add to the population; scarcely 10 per cent. of them taken over decennial periods from 1820 to 1860, inclusive, being above 40 years of age.

The emigration from Great Britain and Ireland alone was 5,046,067 from 1815 to 1860. The French, German, Scandinavian, and Swiss migration were likewise considerable.

The infusion of all this new blood, with its abundance of moral, physical, and material wealth, is of incalculable advantage to the growth and prosperity of their new homes, where they will probably increase and multiply in even a greater ratio than in the lands of their births, from the greater abundance and cheapness of food, and the freer conditions of life in which they live.

It will be interesting, and, in a physiological sense most important, to observe which of the nations forming this perennial stream of fresh scions of the old stocks into the New World will exercise the most permanent and predominant influence in the future of the races that must be the result. Will it be the Saxon or the Celt, or the Scandinavian of the far north, to whom we owe some of our own best blood, and not a few of our leading qualities as a nation, or will the gradual fusion form a new national type, as some suppose? Among several hundred emigrants who went to New York in the same vessel as myself, by far the best raw material for colonisation were the Swedes and Norwegians. They are not likely to form permanently communities of a common origin, and will doubtless, when population begins to press upon space, however distant that may be, fuse into the general mass.

If the writings of the physicians and physiologists of the United States are to be accepted as guides in the determination of this great question, the prevailing opinion seems to be that there is some tendency to physical degeneration at the present time, chiefly from physical causes, among the older families of the Union, who have intermarried to any great extent.

This is a matter quite as deserving of the attention of statesmen

\* American Almanac for 1880, p. 89.

as of scientific men, for it is in their power so to guide the legislation of the future, as to diminish social evils so far as they can be influenced by wise laws, and so far as acts of the State legislatures can regulate and interfere in the domestic concerns of the people.

The following is a statement of the cost of each of the Censuses of the United States as ascertained from the official records on the subject:—

Year.	Cost.	
	\$	c.
1790 .....	44,817	18
1800 .....	66,609	04
'10 .....	178,444	67
'20 .....	208,525	99
'30 .....	378,543	13
'40 .....	833,370	95
'50 .....	1,329,027	53
'60 .....	1,922,272	42
'70 .....	3,336,511	41

For the tenth census a sum of 3 millions of dollars has been sanctioned, and a small supplementary grant for the additional labour imposed by the amending Act.

Considering the greatly improved manner of taking, tabulating, and scrutinising the returns of the present census, and the certain very considerable increase which has occurred in the population in the last decade, it is not probable that these grants will prove sufficient, notwithstanding the rigid economy introduced by the present superintendent.

The difficulty of grasping the value of apparently the same work in the widely differing circumstances of different parts of the country, has been forcibly indicated by General Walker himself, and the truly imperial magnificence of Congress in dealing with all subjects of such manifest importance and pecuniary value to the State, render it certain that whatever is needed for the efficient performance of the work in a manner worthy of the country, will be freely forthcoming. Nothing impressed me more strongly during my visit to the United States, than the wise munificence of the ruling authorities in the publication of all documents of a public character calculated to be of permanent benefit, and with their liberality in placing them at the disposal of all persons interested in them. The medical and surgical history of the War of Secession, and some of their survey reports, are probably the fullest and finest records of the kind in existence, and may fairly be taken as examples of the wise and far seeing policy of the federal government in such matters.

One of the chief features of excellence of the present United

States' census is the minute and extreme care with which the various schedules have been prepared.

Those relating to the wealth and industry of the country are well deserving of careful study. It would exceed my limits, and be foreign to the special purpose of this brief note, to attempt to analyse them. It is, I think, to be regretted that in such returns as are now collected by our Board of Trade, that authority is not armed with some of the powers of obtaining more exact and detailed information, and that our Acts do not contain the severe and stringent penalties granted by the last Census Act of the United States, for wilfully incorrect or false returns.

I append three of the forms issued as examples. No. 1 is the schedule sent to individuals respecting the products of industry; No. 2 concerns the wealth, debt, and taxation, showing the financial condition, of cities; and No. 3 refers to the statistics of wool manufactures.

I have taken the above merely as types. Many of the others are even more searching and minute. Several of these returns are, I believe, already furnished, or in progress, and, when complete and digested, with the reports of the experts, will furnish a body of information such as no other nation possesses. Prefixed to every schedule are the sections of the Census Act, authorising the collection of the information, specifying the persons who are required to afford it, detailing the heads of information called for, and notifying the penalties incurred for neglect or refusal to give true and complete answers.

With respect to the "count of the people," several important changes were introduced in the Act, all tending to secure greater accuracy by more minute subdivisions of the areas of enumeration, by a better selection of the special agents to be employed as enumerators, and by a more equitable adjustment of the compensation to be paid for the work performed. The period allowed for the enumeration was shortened to one month (June) in rural districts and small towns, and to two weeks in cities, as against five months formerly allowed. The intention of this change is to diminish the errors resulting from the incessant movements of the population, during the later summer months.

The schedules and details touching the enumeration of the population are equally precise and particular, and the instructions issued to the supervisors, enumerators, and all other persons engaged in this great work are characterised by clearness, simplicity, and judgment. No one could by any possibility misunderstand the nature and extent of the work assigned to him, nor could those by whom the information was to be afforded, be in doubt as to what they were required to give.



The schedule of the census return proper consists of twenty-six columns.

In cities the name of the street and the number of the house are first given.

Then follow :—

1. Dwelling houses numbered in order of visitation.
2. Families in order of visitation.
3. The name of each person whose place of abode was, on 1st June, 1880, in the family.

*Personal Description, in five columns—*

4. Colour: white, W; black, B; mulatto, M; Chinese, C; Indian, I.
5. Sex: male, M; female, F.
6. Age at last birthday, prior to 1st June, 1880. If under a year, months in fractions, *e.g.*,  $\frac{3}{12}$ .
7. If born within the census year, the month.
8. Relationship of each person to the head of this family: whether wife, son, daughter, servant, boarder, or other.

*Civil Condition, in four columns—*

9. Single.
10. Married.
11. Widowed; divorced, D.
12. Married during census year.

*Occupation, in two columns—*

13. Profession, occupation, or trade of each person, male or female.
14. Number of months this person has been unemployed during the year.

*Health, in six columns—*

15. Is the person, on the day of this enumerator's visit, sick or temporarily disabled, so as to be unable to attend to ordinary business or duties.
16. Blind.
17. Deaf and dumb.
18. Idiotic.
19. Insane.
20. Maimed, crippled, bedridden, or otherwise disabled.

*Education, in three columns—*

21. Attended school within the census year.
22. Cannot read.
23. Cannot write.

*Nativity, in three columns—*

24. Place of birth, naming State or territory of United States, or the country, if of foreign birth.
25. Place of birth of the father, naming the State or territory, or foreign country, if not born in the United States.
26. The same information as regards the mother of the individual in question.

In the instructions at the head of the schedule it is noted, that the census year begins 1st June, 1879, and ends 31st May, 1880.

That all persons are to be included in the enumeration who were living on the 1st June, 1880, and none others. Children born since 1st June to be omitted, but members of families who have died since 1st June, 1880, to be included.

Questions 13, 14, 22, and 23 not to be asked in respect of persons under 10 years of age.

It is manifest that some of these reservations are not needed for a census taken on a single specified day, as in the United Kingdom.

Supplemental schedules, seven in number, were furnished, and have been returned, for the defective, dependent, and delinquent classes, viz., the insane, idiots, deaf mutes, blind, deceased, and persons in prison, together with paupers and the indigent generally.

The object of these supplemental schedules was not only to furnish materials for a complete enumeration of each class, but for an account of their condition, and enumerators were enjoined, regarding the defective and deceased to obtain hints from the medical men practising in the different districts; respecting the paupers and indigent persons from the chief executive officers of all pauper establishments, including homes and asylums for the aged, for the destitute, and for the friendless in the United States; and in relation to prisoners from the warders or keepers of every prison, station house, or lock-up in their respective districts.

Of the supplemental schedules, the death register and the sanitary record are more complete than any documents of a similar character with which I am acquainted, and as they afford information which may be useful to us, I have also appended them to this note—Nos. 4 and 5.

In the former particular instructions are given to secure accuracy of record. They are deserving of careful attention in our own registration returns, in which the causes of death are not always accurately stated.

Upon this subject General Walker justly remarks:—

“The United States are at a marked disadvantage, in comparison with almost any other civilised nation, in the matter of vital statistics. We know not the number of persons born or dying in any year of our political history.

“The registration of births, marriages, and deaths, which in other countries is

rigidly enforced by adequate provisions and sanctions of law, is in some States not even required by statute, while in only three or four of the States which maintain a formal registration, is the service of such a character as to give any considerable value to the results.

" Mere provisions of law will not secure good vital statistics. There must be vigilant administration by expert and thoroughly trained officials, heavy penalties for delinquency, and a disposition of the public mind which will not only allow but demand the relentless enforcement of the law. It is only when it is popularly seen and appreciated that no one can be born into the community or die out of it without affecting the rights and interests of every preceding or surviving member, that adequate legislation and adequate administration will be provided for recording all the essential facts relating to the beginning and the close of every life.

" Outside the three, or at the most four States, above alluded to as maintaining a good system of registration, there are perhaps a score of cities which keep up something like a system of recording births and deaths, of which six or seven have established a reputation for the completeness and accuracy of their published reports.

" For all the rest of the country there is either no statistical information at all respecting the number of those who are born or die during any given period, or the statistics are palpably defective.

" The disadvantage to the United States arising from the lack of good vital statistics is most serious. Not to speak of the unenviable singularity which it gives our country among the civilised and progressive nations ; not to speak of the uncertainty in which it involves our sanitary legislation and administration, or of the loss which the science and practice of medicine suffer from the absence of trustworthy information respecting the range and degree of virulence of certain fatal diseases and the rate of mortality in one section as compared with its neighbours ; the mere pecuniary disadvantage at which our people are placed, in the important matter of life insurance, would, if truly estimated, far outweigh the whole first cost of good vital statistics. Hundreds of millions of dollars have been invested in life insurance in this country within the last thirty years, and yet we have not even an approximate life table\* of the United States. Insurance companies do not know how much they should charge to be safe ; the people do not know how little the companies should charge, to sell insurance at its fair value. All parties are and have been operating in the dark in the matter of interests involving enormous expenditures and receipts, for lack of information which only government can supply, and which in almost all other progressive countries government does supply.

" In partial recognition of the importance of mortuary statistics, the Act of 23rd May, 1850, required the return, by the canvassers of population, of all deaths occurring during the census year ; and if the provisions of the law had been adequate to its intent, the results would have been of great value, even though the facts were obtained but once in ten years.

" In truth, however, the statistics of mortality obtained through the census have always been defective and often grossly misleading. In the seventh census, 1850, there were returned but 324,394 deaths from a living population of 23,191,876 ; in 1860, 394,153 deaths from a living population of 31,443,321 ; in 1870, but 492,263 from a living population of 38,558,371."

The above sound reasoning will doubtless secure the attention it merits, at the hands of the States' Legislatures of the United States.

\* " I speak with all respect of the effort made by Mr. E. B. Elliott, to construct such a table for the Statistical Atlas of the United States, in 1874. Mr. Elliott's effort was most praiseworthy, and his qualifications were equal to almost any task, but the fatal deficiencies in the information attainable would not allow success."

In Appendix V will be found a model of the nature of the information that should be required from our sanitary authorities, of whose actual working of the Public Health Acts, we have at present little exact knowledge in any published report.

The permanent organisations existing in the United Kingdom enable us to obtain annual statements, more or less complete, of the insane and paupers and criminals; and our educational returns leave little to desire with regard to primary schools, industrial and reformatory institutions, and factories and workshops in relation to the young of the labouring classes. All that these require is to be abstracted, harmonised, and presented to the public and the legislature in some simple uniform manner by a central statistical authority, having no relation to the immediate management of such institutions, but dealing with the figures and facts in their strictly numerical and politico-economical aspects, showing the progress of the nation from year to year in some of the matters relating to its moral and material condition.

They are of far more value than any decennial record, however complete and carefully compiled; and England has so long taken the lead in the publication of statistical abstracts of great importance and interest as State papers, as to need only the extension of the system, and its relegation to an office charged with no other duties, at comparatively small additional cost to the State.

The constitution of the United States renders such unity of action extremely difficult, and at present even impossible. I have no doubt, however, from what I saw and heard that with the general advancement of education, and the growing prosperity of this country of practically unlimited capacity of production and progress, the State legislatures will see their way to the organisation, in each of them, of permanent establishments to collect the materials necessary. The federal authorities could then weld into one harmonious whole, all facts and figures tending to illustrate the actual state and progressive advancement of what is destined, from causes beyond the control of human agency, to become the mightiest and most powerful people the world has ever seen.

That they will exercise their power in a spirit of peace and good will to all men, who can doubt who has watched the progress of the Republic from the establishment of its independence to the present time. In all the great crises of their history they have acted with a moderation, humanity, and judgment which justify this belief in their future.

I cannot refrain, in conclusion, from mentioning my visit, on the 15th of September last, to the Census Bureau at Washington, of which I carefully examined the working, under the personal guidance of the superintendent, Major-General Francis A. Walker.



The bureau is located in a large building of several stories, hired for the purpose; but it was found to be too small, and a considerable number of the clerks were transferred elsewhere while I was at Washington.

At the time of my visit the establishment was occupied in checking the returns of the enumerators, with a view to their speedy payment.

On the cellar floor in the basement, which is large and well lighted, were arranged in order the portfolios containing the original schedules filled up and furnished by the enumerators and supervisors from the whole of the United States.

On each of the upper floors were grouped in gradations, the large staff of clerks and superintendents, by whom the examination of each schedule was made. Every entry of every kind, at each stage of its scrutiny, was subjected to a double system of check, prior to being sent on to the higher officials for final examination.

From the careful, microscopic minuteness with which this excellent system of checks and scrutiny has been organised, it is well nigh impossible for any error of original entry or subsequent scrutiny to escape detection, before the record is finally passed as correct.

A large number of the clerks were educated ladies, and the whole of the *employés* who had not been previously passed and proved, were subjected to careful examination, to prove their fitness to be employed in the office.

I believe there was nothing to choose in the general correctness and accuracy of the work of the two sexes; the final examination alone being entrusted to the male superintendents.

The minimum standard accepted was the average qualification of a good bank or paymaster's clerk. The rule laid down by the General in his report on the ninth census, was, that one good clerk was more valuable than two, three, or four merely moderate clerks, while no consideration would induce him to give desk-room to a really poor clerk.

Of the last census reports, with their voluminous tables and maps, 25,000 copies were printed and circulated.

It needs but little of the gift of prophecy to predict that, in spite of the difficulties and sources of error inseparable from the existing system of counting the people of the United States, even in the greatly diminished space of time allowed, the present will be the most valuable and reliable return yet produced.

And, as respects the wealth and industry of the States, the record will be much in advance of that of any other nation in the world.

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## APPENDIX I.

*Tenth Census of the United States.*

## PRODUCTS OF INDUSTRY, &amp;c.

## INDIVIDUAL SCHEDULE.

Products of industry in \_\_\_\_\_, situated in  
(Name of Establishment.)

in the county of \_\_\_\_\_, State of \_\_\_\_\_, during the  
twelve months beginning 1st June, 1879, and ending 31st May,  
1880.

[Insert here name of proprietor, agent, or  
other officer in charge, with title.]

Street and No.

Post Office

State

N.B.—This schedule is designed to be left with the proprietors, agents, or other persons in charge of establishments of productive industry, in advance of the visit of the special agent charged with collecting the statistics of manufactures. It is hoped that the requirements of the blank will be studied, and that pains will be taken to fill out the schedule as accurately as possible, so that it may be ready for the agent of the Census Office when he shall call.

1	2	3	4	5	6	7	8	9	10	11	12					
Name of Corporation, Company, or Individual Producing to the Value of \$500 Annually.	Name of Business, Manufacture, or Product.	Capital (Real and Personal) Invested in the Business.	Greatest Number of Hands Employed at any one time during the Year.	Average Number of Hands Employed.			Number of Hours in the Ordinary Day of Labour.	Wages and Hours of Labour.			Total Amount Paid in Wages during the Year.					
				Males above 16 Years.	Females above 15 Years.	Children and Youth.		Average Day's Wages for a Skilled Mechanic.	Average Day's Wages for an Ordinary Labourer.							
										May to November.		November to May.				
13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
					Power used in Manufacture.											
					If Water Power is used.											
					If Steam Power is used.											
					Horse- Power.											

*Remarks*.—The term "Protective Industry" must be understood, in its largest significance, to include not only all factories and large works, but also the mechanical trades as blacksmithing, coopering, carpentering, &c. The smallest shop should not be omitted, provided the production reaches \$500 annually, including the cost of materials.

Col. 2.—The kind of business or the character of product should be described as specifically as possible, thus: Sewing machines, corsets, furniture, foundry, machine shop, coopering, blacksmithing, &c.

Col. 13.—In many establishments (as carpenter's shops, blacksmith's shops, &c.) it will be found that no ordinary labourers are employed. In this case Col. 11 will not be filled. Cols. 13 to 17.—All the twelve months of the year should be accounted for in one or more of the Cols. 13 to 17, thus: twelve months on full time; or eight months on full time and four months on half time; or ten months on full time and two months idle.

Cols. 18 and 19.—These inquiries are of prime importance. Great care and judgment should be exercised in making the returns relative thereto, especially in the case of small shops where book accounts are not kept.

[18].—The cost of superintendence, rent, freight of goods to market, and other general expenses of a manufacturing establishment are not to be included in materials. Mill supplies and fuel should be included.

[19].—The value of the product, in the case of mills and factories producing for a distant market, means the wholesale price of the goods. In the case of small shops producing goods, or doing work for the neighbourhood only, the value of the product means the price charged at the shop.

Col. 20.—If the stream is a very small one, mention also the larger stream or river into which it flows. Cols. 27 and 28.—Only serviceable boilers and engines are to be reported.

Cols. 28 and 29.—This is an inquiry of great importance. The best information available should be used in filling these columns.

## APPENDIX II.

*Tenth Census of the United States.*

## WEALTH, DEBT, AND TAXATION.

Report of the financial condition of the \_\_\_\_\_ of \_\_\_\_\_,  
 county of \_\_\_\_\_ and State of \_\_\_\_\_, for the fiscal  
 year ending on the \_\_\_\_\_ day of \_\_\_\_\_, 18 \_\_\_\_.

Signature

Official position

(OFFICIAL.)

DEPARTMENT OF THE INTERIOR,

*Census Office, Washington, D.C.,*

*1st May, 1880.*

In accordance with the provisions of the Act of Congress, approved 3rd March, 1879, Robert P. Porter, Esq., of Chicago, Illinois, has been appointed the special agent of the Census Office, to have charge of the collection of the statistics of wealth, debt, and taxation of the United States.

The special agent thus appointed has all the authority of a census enumerator under the Act, and is empowered to conduct in his own name the correspondence relating to this branch of the census.

FRANCIS A. WALKER,

*Superintendent of Census.*

*Extract from the Act of 3rd March, 1879.*

Sec. 18. Whenever he shall deem it expedient, the superintendent of census may withdraw the schedules for manufacturing and social statistics from the enumerators of the several subdivisions, and may charge the collection of these statistics upon experts and special agents, to be employed without respect to locality. . . . And the superintendent of census shall, with the approval of the Secretary of the Interior, prepare schedules containing such interrogatories as shall, in his judgment, be best adapted to elicit this information, with such specifications, divisions, and particulars under each head as he shall deem necessary to that end. Such experts and special agents shall take the same oath as the enumerators of the several subdivisions, and shall have equal authority with such enumerators in respect to the subjects committed to them.



## Value of Property and Revenue.

(A.)—VALUATION.

	Assessed Value.	Estimated Full Value.
Total value of real property.....		
„ personal property .....		
Aggregate value of real and personal property		

(B.)—REVENUE.

Total receipts from taxation.....	\$
"          water rent .....	\$
"          liquor licenses .....	\$
Receipts from all other sources.....	\$
Total receipts .....	\$

*Expenditures.*

For what Purpose Expended.	Amount.
Schools .....	
Streets .....	
Sanitary purposes .....	
Poor .....	
Police .....	
Fire Department .....	
Water .....	
Debt and interest.....	
All other purposes .....	
Total expenditures .....	

### Bonded Indebtedness.

Years of Issue.	What Issued for— Giving full Particulars of all Bonds.	Length of Time from Date Bonds Run before Maturity.	Date of Maturity.	Amount Paid.	Amount Out- standing.	Rate of Interest.

*Floating Indebtedness.*

When Incurred.	Contracted for.	Composed of.	Dates of Maturity of such Obligations.	Amount Outstanding.	Rate of Interest.

*Sinking Fund and Other Resources.*

Amount of Sinking Fund.	Date when Established.	Purpose for which Established.	Composed of		Other Resources.
			Bonds.	Other Items.	

*Assets.*

Composed of.	Value of Same.	
	Par Value.	Estimated Value.
Total .....		

## APPENDIX III.

*Tenth Census of the United States.*

## STATISTICS OF WOOL MANUFACTURE.

(OFFICIAL.)

H.

DEPARTMENT OF THE INTERIOR,

*Census Office, Washington, D. C.,*

1st November, 1879.

In accordance with the provisions of the Act of Congress approved 3rd March, 1879, each proprietor of a wool factory will be required, on 1st June, 1880, to answer all the questions following, and to forward the schedule, as filled, by mail, directed to the superintendent of census, Washington, D. C.

Mr. George Wm. Bond, of Boston, has been appointed, in compliance with law, as the special agent of the census office in the collection of the statistics relating to the manufactures of wool. The special agent thus appointed has all the authority of a census enumerator under the Act of 3rd March, 1879, and is empowered to conduct, in his own name, the correspondence relating to the foregoing branches of productive industry.

FRANCIS A. WALKER,

*Superintendent of Census.*

The answers to all the following questions will be confidential as to each separate manufacturing establishment. The compilation will be made by counties, or by cities of not less than 10,000 inhabitants.

*Extract from the Act of 3rd March, 1879.*

Sec. 14. That each and every person more than 20 years of age, belonging to any family residing in any enumeration district, and in case of the absence of the heads and other members of any such family, then any agent of such family, shall be, and each of them hereby is, required, if thereto requested by the superintendent, supervisor, or enumerator, to render a true account, to the best of his or her knowledge, of every person belonging to such family, in the various particulars required by law, and whoever shall wilfully fail or refuse shall be guilty of a misdemeanor, and upon conviction thereof shall forfeit and pay a sum not exceeding 100 dollars; and every president, treasurer, secretary, general agent, or managing director of every corporation from which answers to any of the schedules provided for by this Act are herein required, who shall, if thereto requested by the superintendent, supervisor, or enumerator, wilfully neglect or refuse to give true and complete answers to any inquiries authorised by this Act, such officer or agent shall forfeit and pay a sum not less than 500 dollars nor more than 10,000 dollars, to be recovered in an action of debt in any court of competent jurisdiction, in the name and to the use of the United States, and in addition thereto shall be guilty of a misdemeanor, and on conviction thereof shall be imprisoned for a term not exceeding one year.

Sec. 15. That all fines and penalties imposed by this Act may be enforced by indictment or appropriate action at law in any court of competent jurisdiction where such offences shall have been committed or forfeitures incurred.

1. Location of mill: State of \_\_\_\_\_, county of \_\_\_\_\_, city or town of \_\_\_\_\_
2. Name of mill,
3. Name of corporation, if a corporation,
4. Name of president, \_\_\_\_\_; post office address, \_\_\_\_\_
5. Name of treasurer, \_\_\_\_\_; post office address, \_\_\_\_\_
6. Name of owners, if privately owned, \_\_\_\_\_; post office address, \_\_\_\_\_
7. Name of agent or superintendent, \_\_\_\_\_; post office address, \_\_\_\_\_
8. Number of sets of cards, \_\_\_\_\_; width of same, \_\_\_\_\_
9. Daily capacity of same in scoured wool, \_\_\_\_\_; on the average character of your work, \_\_\_\_\_ lbs.
10. Number of combing machines of foreign manufacture,
11. Daily capacity of same in scoured wool, \_\_\_\_\_; on the average of your work, \_\_\_\_\_ lbs.
12. Number of combing machines of American manufacture,
13. Daily capacity of same in scoured wool, \_\_\_\_\_; on the average of your work, \_\_\_\_\_ lbs.
14. Number of broad looms on woollen goods,
15. Number of broad looms on worsted goods,
16. Number of narrow looms on woollen goods,
17. Number of narrow looms on worsted goods,
18. If any hand looms, please to give the number,
19. Number of Brussels power looms,
20. Number of ingrain power looms,
21. Number of knitting machines,
22. Number of knitting looms,
23. Number of sewing machines,
24. Number of woollen spindles,
25. Number of worsted spindles,
26. Quantity of scoured wool (not including waste purchased and shoddy) consumed during the year, \_\_\_\_\_ lbs.
27. Quantity of foreign wool in condition purchased, consumed during same period, \_\_\_\_\_ lbs.
28. Quantity of domestic wool in condition purchased, consumed during same period, \_\_\_\_\_ lbs.
29. Value at the mill of foreign and domestic wool consumed, \$ \_\_\_\_\_
30. Quantity of camel's hair and noils consumed \_\_\_\_\_ lbs.; value, \$ \_\_\_\_\_
31. Quantity of mohair and noils consumed, \_\_\_\_\_ lbs.; value, \$ \_\_\_\_\_
32. Quantity of buffalo hair consumed, \_\_\_\_\_ lbs.; value, \$ \_\_\_\_\_



33. Quantity of hair of other animals, lbs.;  
value, \$
34. Quantity of cotton used on cards, lbs.;  
value, \$
35. Quantity of shoddy used, or waste, not including that made  
in mill, lbs.; value, \$
36. Number of pounds of cotton warp used on woollen goods,  
lbs.; value, \$
37. Number of pounds of cotton warp used on worsted goods,  
lbs.; value, \$
38. Number of pounds of woollen yarn used not made at mill,  
lbs.; value, \$
39. Number of pounds of worsted yarn used not made at mill,  
lbs.; value, \$
40. Number of pounds of worsted yarn made and sold not used  
at mill, lbs.; value, \$
41. Number of pounds of woollen yarn made and sold not used  
at mill, lbs.; value, \$
42. Value of chemicals and dye-stuffs used, \$
43. Number of cords of wool used, ; value, \$
44. Number of tons of coal used, ; value, \$
45. Value of all other materials, including supplies of every name  
and nature, \$
46. Value of materials of all kinds, \$

NOTE.—In filling the following return, set down all the products of the mill which are intended for sale, whether yarns, hat-bodies, hats, knitted, felted, or woven goods; put each general kind by itself, and the particular description in addition.

Description of Goods Manufactured.	Quantity Manufactured.	Value.

47. Of what are the buildings constructed ?

48. Kind of power ; steam, water, or both :

49. If steam power, give the number of boilers, ;  
number of engines, ; total horse power, ;  
and quantity of fuel used daily,

50. If water power, state on what river or stream, ;  
available head of water, ; kind of wheels and  
number, ; diameter and breadth of wheels, ;  
revolutions per minute, ; total horse power,

51. Number of hands employed in actual production in the  
factory and cloth-room, including overseers and second hands,

. Males of 16 years and upward, ;  
below 16 years, . Females of 15 years and up-  
ward, ; below 15 years,

52. Number of hands employed as mechanics, engineers, fire-  
men, watchmen, and labourers, Males of 16 years and  
upward, ; below 16 years, . Females  
of 15 years and upward, ; below 15 years,

53. Number of officers (president, treasurer, agent, superinten-  
dent, paymaster, and clerk), Males of 16 years and  
upward, ; below 16 years, . Females  
of 15 years and upward, ; below 15 years,

54. What was the total amount of wages, earnings, or salaries  
paid in conduct of the business, other than selling, in the last  
financial year ending ? \$

55. What was the wholesale value of the product of the works  
in the principal markets, on the basis of prices obtained by selling  
agents, without deduction for expenses of selling ? \$

56. Amount of capital invested in works and employed in  
business, including both fixed and active capital or surplus, \$

[In making up this statement, the value of the works should be estimated as  
nearly as possible at what they would cost in 1880, if then to be erected, with  
such deduction for deterioration as may be suitable in the individual case.]

OFFICE OF THE

(Post Office address)

Co. (if a corporation.)

(Date)

188 .

I hereby certify that the foregoing report, made in compliance  
with the requirements of the Act of Congress entitled, "An Act  
for taking the Tenth and subsequent Censuses," approved  
3rd March, 1879, is correct and just, according to the best of my  
knowledge and belief.

(Name)

(Official position)

## APPENDIX IV.

*Instructions.*

The important point in this schedule is the question in Col. 14, headed "Disease or Cause of Death." Especial pains must be taken in this column to make the answer full and exact, and to this end, attention is called to the following points:—

Enter the name of the primary disease in all cases, and where the immediate cause of death has been a complication or consequence of the primary disease, enter that also. For instance, enter all cases of death resulting either immediately or remotely from *measles, scarlet fever, typhoid fever, remittent fever, small pox, &c.*, under the names of those diseases, but add also *dropsy, hæmorrhage from the bowels, pneumonia, &c.*, if these occurred as complications and were the more immediate cause of death. In cases of death from hæmorrhage, specify the origin of the hæmorrhage, thus: *hæmorrhage from aortic aneurism, hæmorrhage from ulcer of intestines in typhoid fever, hæmorrhage from lungs, hæmorrhage from wound of neck, &c.* So also for abscess, aneurism, cancer, carbuncle, dropsy, tumour, ulcer, specify the organ or part affected, as *iliac abscess, abscess of liver; femoral aneurism; carbuncle on lip; cancer of breast, cancer of uterus, cancer of face; dropsy of chest, dropsy of abdomen; inflammation of brain, inflammation of liver; tumour of neck, tumour of abdomen; ulcer of face, ulcer of groin, &c.* Typhus, typhoid, and typho-malarial fevers should be carefully distinguished. Especial inquiry should be made for cases of "still-births," including infants born dead from whatever cause. As few deaths as possible should be reported under such general terms as *disease of the throat, disease of the brain, disease of the liver, disease of the lungs, disease of the bowels, disease of the spine, &c.* These should, as far as possible, be reported under special heads.

Make sure that the distinction between *apoplexy, epilepsy, and paralysis* is understood. Distinguish between acute and chronic bronchitis, acute and chronic dysentery or diarrhoea, acute and chronic rheumatism. Report cerebro-spinal meningitis as cerebro-spinal fever. Do not report as the cause of death *old age* or *intemperance*, or *debility*, or *paralysis of the heart*, or *sudden death*, in any case where it is possible to name any definite disease. In reporting suicide, name the means, whether cutting of throat, hanging, drowning, shooting, poisoning by opium, arsenic, &c.

A space is left at the bottom of each page of this schedule for remarks. It is desired that the enumerators should there describe any particular malady or unusual or peculiar disease which has prevailed in the subdivision, and the supposed cause thereof. In case of any unusual number of deaths by violence or accident (as by the caving of a mine, or similar calamity), an explanation should be given in the space for remarks.

The enumerator should endeavour to see in person every physician residing in or near his enumeration district, who is named in this schedule as the physician attending at death, and courteously invite him to inspect the entries in regard to the cause of death in his cases, and to verify or restate them as the facts may demand. For this purpose spaces are provided below, numbered to correspond with the lines of the schedule upon pp. 598 and 599.

If the physician finds the entry in the schedule correct and fully in accordance with the foregoing instructions, he is requested to make the entry in the proper numbered space below: *Correctly stated.* If he does not deem it correct, it is desired that he restate the cause of death in the numbered space in accordance with his own views, signing each entry.

The enumerator should also inquire of each physician within his enumeration district whether he has a record or register of deaths occurring during the census year, kept at the request of the superintendent of census, and if so, will offer to take charge of and forward the same to the census office under his official frank.

Page No.

Supervisor's Dist., No.

Enumeration Dist., No.

NOTE A.—The census year begins 1st June, 1879, and ends 31st May, 1880.

B.—In making entries in Cols. 6, 7, and 8, an affirmative mark only will be used, thus /, except in the case of divorced persons, Col. 8, when the letter "D" is to be used.

SCHEDULE 5.—Persons who Died during the Year ending 31st May, 1880, Enumerated by

1	2	3			6		
		Personal Description.			What was the Civil Condition of the Person who Died?		
Number of the Family as given in Col. 2, Schedule 1.	Name of the Person Deceased.	Age at last Birthday. If under 1 Year, give Months in Fractions, thus: $\frac{3}{12}$ . If under 1 Month, give Days in Fractions, thus: $\frac{5}{30}$ .	Sex: Male (M.), Female (F.).	Colour: White (W.), Black (B.), Mulatto (Mu.), Chinese (Ch.), Indian (I.).	Single /.	Married /.	Widowed /. Divorced (D.).
(Numbers 1 to 35 occupy this space.)							

NOTE E.—Upon this schedule should be carefully returned—

1st. Every death which has occurred in this enumeration district during the census year, whether the deceased was a  
2nd. Every death which has occurred outside of this enumeration district during the census year, the deceased being a  
The enumerator should make these entries upon this schedule with great care, seeking every source of information the entry may be inclosed in parenthesis, thus: Age (25), meaning that the best estimate of the age that can be given

Of the Deaths reported above, the following occurred in this Enumeration District, but the Families to which the Deceased belonged, resided 1st June, 1880, out of the Enumeration District, as follows:—

Number of the Line upon which the Case is Reported above.	Place where the Family of the Deceased resided 1st June, 1880.		
	Town.	County.	State.

REMARKS.



NOTE C.—For instructions relative to the entries in Col. 14, see p. 597.

„ D.—In Col. 17, note distinctly if no physician was in attendance, thus: *None*.

me in , in the County of , State of .  
Enumerator.

Nativity.			Profes- sion, Occupation, or Trade. (Not to be asked in respect to Persons under 10 Years of Age.)	The Month in which the Person Died.	Disease or Cause of Death.	How long a Resident of the County? If less than 1 Year, state Months in Fractions, thus: $\frac{3}{12}$ .	If the Disease was not Contracted at Place of Death, state the place.	Name of attending Physician.
Place of Birth of this Person, naming the State or Territory of the U. S., or the Country if of Foreign Birth.	Where was the Father of this Person Born? (As in Col. 9.)	Where was the Mother of this Person Born? (As in Col. 9.)						

(Numbers 1 to 35 occupy this space.)

was not, at death, a member of any family which resided 1st June, 1880, in the district.  
date of death a member of a family which resided 1st June, 1880, in the enumeration district.  
When a positive statement is impossible, as when an age can only be estimated, or a birthplace must be conjectured,  
is 25 years.

Of the Deaths reported above, the following occurred out of this Enumeration District, though the Families to which  
the Deceased belonged, resided 1st June, 1880, in this Enumeration District, as follows:—

Number of the Line upon which the Case is Reported above.	Place where the Death occurred.		
	Town.	County.	State.

REMARKS.

*Form for the Statement by Attending Physicians of the Causes of Death in the Cases Reported on pp. 598 and 599.*

Number of the Line on Schedule 5 upon which this Case is Reported.	Cause of Death.		Signature of the Attending Physician.
	Primary.	Immediate.	
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
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15			
16			
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33			
34			
35			

## APPENDIX V.

## H.

## DEPARTMENT OF THE INTERIOR.

*Census Office, Washington, D. C.,*

15th May, 1880.

Sir,

It is desired to secure answers to the questions in the annexed schedule concerning the city of \_\_\_\_\_, which shall be as minute and accurate as possible.

Very respectfully yours,

GEO. E. WARING, JUN.,

*Expert and Special Agent.*

(NOTE.—Whenever the space allowed in this blank is insufficient for a full reply, paste in a fly-sheet.)

## SANITARY AUTHORITY.

What is the title of the chief health organisation?

Is it an independent board, or is it the board of aldermen or other body acting as a board of health?

If an independent board, how many members has it, and what proportion of them are physicians?

What is the annual expense of the board when there is no declared epidemic, and for what uses is the expense incurred?

To what extent may the board increase its expenses during an epidemic?

What is the extent of its authority in the absence of epidemics?

What during epidemics?

Please furnish a copy of existing health ordinances.

What is the title, what the salary, and what are the powers and duties of the chief executive officer of the board?

What is the mode of transacting the business of the board?

Please furnish copy of its rules of procedure, if such exist.

What number of assistant health officers and of inspectors are employed?

What proportion of them are physicians?

Have they or any of them police powers?

Of what nature and extent?

What is the practice concerning inspections, *i.e.*, are they made regularly, and in all parts of the city, or only as nuisances are reported?

When nuisances are reported, what is the procedure concerning them?

How is the board appointed, and to what extent is its action subject to the control of the city government?

How often does it meet?

What is the custom concerning the inspection and correction of defective house drainage, privy vaults, cesspools, sources of drinking water?

What concerning defective sewerage, street cleaning, &c.?

What control does the board exercise over the conservation and removal of garbage?

What are the regulations concerning the burial of the dead?

What are the board's regulations concerning the pollution of streams and harbours and the removal of excrement?

Are small pox patients isolated? If so, in what way?

Are scarlet fever patients isolated (or quarantined at home), and in what way?

Does the board take cognisance of the breaking out of contagious diseases in public and private schools, and to what extent does it control the treatment of such cases?

Is there a public pest house, and where is it situated?

Is vaccination compulsory?

Is it done at the public expense?

What is the system of registration of diseases and births and deaths?

To whom does the board report; how often, and how are its reports published?

Please state any other interesting or important facts concerning the public health authority which may be within your knowledge, and which are not covered by the above interrogatories, noting especially its relations to the medical profession in your city.

(Date)

(Signature)

(Post Office address)

#### DISCUSSION *on* DR. MOUAT'S PAPER.

MR. C. WALFORD said that as the subject of the paper was one in which he took a deep interest, and on which he had some knowledge, he wished to make a few observations. He believed it was the first time that in a comprehensive way the Statistical Society had had the American method of taking the census explained. About fifteen



to twenty years ago he had given some outline of the population of the United States; but at that time the census was very different. There was always a very great difficulty experienced in taking the census of America, in consequence of the scattered population; and especially was this the case in the wide tracts of country in the western States. But one noticeable feature which struck him in regard to the American census, was the vast intelligence which was brought to bear upon taking it, and the great interest which was manifested by the people in regard to it, as well as the readiness with which they were willing to pay the money required for carrying out the work. The Americans had evinced the keenest anxiety to make the census as perfect as possible, as he knew from special applications made to himself and others, and whatever suggestion was made to those in charge of it for the attainment of that object was most favourably received. He could not help contrasting that state of things with what had happened in a country nearer home. He had had the honour of serving on committees of learned societies in this country, where they had undertaken to make suggestions in regard to points to be observed in the census enumeration here. What had been the result of those suggestions? Why, they were favourably met by the officials, who understood what they were doing, and were anxious to do all they could for the common good; but they had been rejected by Parliament; not in wisdom, he was afraid, but in its utter want of wisdom in this matter. As regarded the vital statistics as bearing on life insurance, General Walker was naturally enough desirous of having national life tables, which might be applied to the purposes of life insurance companies; but it must never be forgotten that from the variations of climate, soil, and character of diseases existing in the United States, no national table whatever could secure accuracy and reliability. There was a great difference between the north and west and the south in regard to these things. At the present time, to show how little the remarks of General Walker could apply to any actual want of a national table, he might say that twenty leading life insurance companies in the United States had for the last four or five years had a commission of actuaries at work, giving all the information required for the purposes of insurance; and when they had examined the subject and tabulated the results, they would furnish a table for the purpose of life insurance as reliable as any table in this country at the present time. General Walker was no doubt a very zealous official, and wished to make a national table because other countries had one, and indeed there was no reason why there should not be such a table; but the reasons assigned for it were not valid ones in a life insurance sense. Many of the individual States had had effective tables, which were found very useful. He intended to say nothing disparaging of General Walker, whom indeed he held in great admiration.

Mr. E. HEPPLÉ HALL claimed to be heard on the ground that he had worked on the United States' census under General Walker, and he spoke, as they would say, by the "book." He could subscribe to what their friend Dr. Mouat had said, and could fully

endorse these words—which he took to be the keynote of the whole paper—“the clearness, simplicity, and judgment with which the papers have been prepared.” He must, however, take exception to, and with a great deal of regret, and qualify these words to some extent as regards two things. He happened to know something of the means adopted in the preparation of those very voluminous reports that came to them from year to year from the Statistical Bureau at Washington, and as Mr. Walford had already said (and he spoke with a good deal of authority in that respect) as regards life insurance, these reports were subject to considerable qualification. He could hardly say much with regard to immigration, but he had worked thirty years in that field, having made up a considerable number of blue books, and he must take very broad exception to the method adopted by General Walker, Mr. Young, and the others associated with them in that bureau. They all knew of course that he spoke entirely on the matter of working. The way in which those figures were arrived at was not so efficient, orthodox, and sound as many were apt to suppose from the voluminous schedules which Dr. Mouat had shown in his portfolio. The method of gathering statistics in America was most thorough there could be no question. The schedules were the most perfect that human ingenuity could devise, but like a beautiful running machine they would sometimes get off the track; and they got off the track lamentably, both in regard to vital statistics and immigration, and especially in regard to the latter for 1881 he felt entitled to state that the statistics were terribly and widely at fault. He would tell them why. There was a general tendency in all United States' statistics to exaggeration. It was quite impossible to keep down the census returns of the western States. It was a pardonable vanity on their part. He did not stand there to analyse, dissect, criticise, or carp at anything in the paper. All that he wished to say was that they had very great and vital interests hanging upon the accuracy of every statement that came from the United States in regard to population, &c., and as a Society it was their duty to sift and analyse these things as they came to them.

Dr. MOUAT replied that some gross errors had crept into the figures in the tables, which should be duly corrected when the paper was printed in the *Journal*. He also defended General Walker in regard to his remarks on the subjects of life assurance, and the absence of a reliable life table for the whole of the States, remarking that no one was more alive to the facts of the different risks to life from climate and other causes in different parts of the Union than the superintendent of the census. The paper was exactly and only what its title represented, but Dr. Mouat hoped when the census returns relating to the count of the people was worked out and published, to prepare an abstract of them for submission to the Society.

---

*"The ORIENTAL PLAGUE in its SOCIAL, ECONOMICAL, POLITICAL, and  
 "INTERNATIONAL RELATIONS, special REFERENCE being made to the  
 "LABOURS of JOHN HOWARD on the subject." A PRIZE ESSAY,  
 By HENRY PERCY POTTER, ESQ., F.R.C.S., to whom the HOWARD  
 MEDAL of 1880 was AWARDED.*

## CONTENTS:

	PAGE		PAGE
Preface.....	605	IV.—Socially, Religiously, and	
I.—Historical Sketch.....	606	Politically Considered ....	622
II.—Short Review of Howard's		V.—Internationally Considered ..	630
Biography and Labours...	613		
III.—Conditions under which the		APPENDIX.	
Plague Arises .....	617	Tables A to F.....	633

*Preface.*

THE present Essay is respectfully submitted to the Statistical Society as a competition for the Howard Medal.

It will doubtless be evident to the reader that many of the sections have been treated very cursorily, but it is hoped that some approbation will be accorded by the Committee of the Society.

In constructing the different parts of which this contribution is composed, endeavour has been made to adhere as strictly as possible to the subject of the title.

The writer feels, however, that some apology is needed on account of the small amount of statistical matter incorporated in this small literary production.

It is only necessary to add that frequent reference has been made to many works treating of the plague, these being specified at the end of the essay.

The malady known to us as Oriental plague ( $\pi\lambda\eta\gamma\eta$ , a blow or wound) has been described under the different appellations of pestilential fever, septic or glandular fever, the black death. Older writers likewise comprehended in the term plague—brain fever, influenza, petechial or spotted fever, the epidemic flux and scurvy, and diphtheria or malignant sore throat. It is of such rare occurrence now-a-days that few modern physicians have had the opportunity of examining or reporting upon a case. There is no doubt that occasionally individuals suffering from a form of this disease present themselves at the hospitals in those districts of the Levant

in which faulty sanitary conditions prevail.\* But epidemics of this disease are now fortunately very infrequent; it may be looked upon as one of the greatest natural calamities that ever afflicted the human race.

When we investigate the geographical range of the Oriental plague, we find that epidemics have chiefly originated in the eastern parts of Europe and western Asia, although the disease cannot be said to be indigenous to any one country. From this central source it has spread eastward to China, and westward to Greece, Italy, France, Germany, and the British Isles. It is exceedingly doubtful if any large epidemics have occurred independent of actual importation. It is generally supposed to be an exotic disease.

### I.—*Historical Sketch.*

Great antiquity attaches to the Oriental plague. The first succinct account of the signs of this malady was given by Thucydides the historian and Lucretius the poet, who describe its characteristics with much ability when treating of the plague of Athens. This plague broke out in the year 428 B.C., during a siege when the city was suffering from famine and overcrowding of human beings. It is said to have originated in Ethiopia; it then devastated Egypt and Lybia, and finally struck the Grecian capital.

Lucretius gives the following account of its ravages:—

#### *Principio caput infensum, &c.*

“First fierce *unusual heats* did seize the *head*,  
 The glowing eyes with *bloodshot beams* look’d red,  
 The *mouth* and *jaws* were filled with *clotted blood*,  
 The *throat* with *sores*, the *tongue* could speak no more;  
 But overflow’d and drown’d in *putrid gore*  
 Grew useless, rough, and scarce cou’d make a moan,  
 And scarce enjoy’d the wretched power to groan;  
 Next thro’ the *jaws* the plague did reach the *breast*,  
 And then the *heart*, the seat of life possess’d;  
 Then life began to fail, strange *stinks* did come,  
 From every putrid breast as from a *tomb*;  
 The *body* weak, the kind did sadly wait,  
 And fear’d but could not fly approaching fate.  
 To these first pains were join’d continual care  
 And sad complainings, groans, and deep despair;  
 Tormenting, vexing sobs, and deadly sighs  
 Which rais’d *convulsions*, broke the vital ties  
 Of *mind* and *limbs*, and so the patient dies.”

---

\* The author when at Alexandria in 1877, was furnished with opportunities of seeing several individuals who were the victims of large elevated patches on the skin, accompanied with fever which was said to be contagious. The disease only existed in those squalid portions of the town so well known to eastern travellers.



It is with a description of the plague that Homer begins his sublime poem; and the noblest of Grecian tragedies (the *Cædipus Tyrannus* of Sophocles) is commenced in a similar manner; and in both cases contagion is the immediate messenger of heavenly wrath.

"In the reign of Marcus Aurelius, A.D. 167, the real Oriental plague was carried into Europe by the army returning from the Parthian war, and spread all over the western world, Asia, Greece, Italy, Gaul, &c. Africa alone was perhaps not reached by it. This pestilence must have raged with considerable fury, and it carried off innumerable victims. As the reign of Marcus Aurelius forms a turning point in so many things, and above all in literature and art, we have no doubt that this crisis was brought about by that plague. The happiness of M. Aurelius was thus disturbed by the plague, which was carried into Europe from the east, and by the wars with the Germans. It increased in the reign of Decius, that is from A.D. 256. During the ravages made by the barbarians it spread all over the empire; it now raged in Africa and Egypt, and became settled."—NIEBUHR, *Hist. Rome*, vol. v.

The fatal plague of Athens is said to have been put an end to by Hippocrates, who lighted immense fires in the chief thoroughfares.

Procopius, a Greek Byzantine historian, gives the history of a plague in the year 542 A.D., which lasted to a greater or less extent for half a century.

Agathius, another Greek historian who lived about the same time, gives an account of the plague at Byzantium.

The first epidemic of plague in this nation occurred in the year 447 A.D.; it passed thence to France, chiefly attacking Paris in 583. This disease was termed by the French "plague in the groin," from the fact of the glands in that region being usually affected.

At least ten plagues are recorded in the sacred history of the Jews, and thirty-two plagues in the history of Rome, before the Christian era. During the early history of Greece many epidemics of pestilence and famine attacked the country; the plague of Athens was amongst these. The Roman empire was devastated by the disease in the second and third centuries, and by the Egyptian plague twice about the middle of the sixth century.\*

Other epidemics of this disease occurred in various parts of Europe in 1048, 1086, 1093, 1247, 1259, 1315, and in 1348 an epidemic pestilence began in China, passed through Asia into Greece and Florence. This malady, undoubtedly an aggravated form of the plague, was called the "black death," or "great mortality."

\* "Public Health," by Wm. A. Guy, 1870.

It was accompanied by the usual symptoms of inflammation and tumours of the glands, spots, fever, and discharges of blood from the lungs; it began in the east, and passed on uninterruptedly to all countries in western Europe, and reached London in November, 1348, and lasted for several years. At least 100,000 persons were lost, of whom 50,000 were buried in Smithfield. The scourge destroyed three-fourths of the people in places where it was most virulent.

“ In 1418 Strasburgh was visited by the ‘dancing plague,’ and “ the same infatuation existed amongst the people there as in the “ towns of Belgium and the Lower Rhine A.D. 1374. Many who “ were seized on seeing the afflicted excited attention at first by their “ confused and absurd behaviour, and then by their constantly following the swarms of dancers. These were seen day and night “ passing through the streets, accompanied by musicians playing on “ bagpipes and by innumerable spectators attracted by curiosity, to “ whom were added anxious parents and relations who came to look “ after those among the misguided multitude who belonged to their “ respective families.

“ Imposture and profligacy played their part in this city also, “ but the morbid delusion itself seemed to have predominated. On “ this account religion could only bring provisional aid, and therefore the town council benevolently took an interest in the afflicted; “ they divided them into several parties, to each of which they “ appointed responsible superintendents to protect them from harm, “ and perhaps also to restrain their turbulence. They were thus “ conducted on foot and in carriages to the chapels of St. Vitus, “ near Zabern, and Rotestein, where priests were in attendance to “ influence their misguided minds by masses and other religious “ ceremonies. After divine worship was completed, they were led “ in solemn procession to the altar, where they made some small “ offering of alms, and where it is probable many, through the “ influence of devotion and the sanctity of the place, were cured of “ this lamentable aberration.”—Dr. BASCOMBE.

From England the black death was carried to Norway, thence to Poland and Russia, where it commenced with spitting of blood, and proved fatal in two days.

In 1361 the “second pestilence” commenced its ravages, and in 1369 the “third pestilence” occurred with renewed vigour.

In the fourteenth century a quarter of the population of the old world was swept away in four years, and England lost more than double that proportion in a few months.

Epidemics of Oriental plague were noted in 1407, 1427, and 1478, and during the fifteenth century the plague broke out seventeen times in different parts of Europe.

In 1485 it assumed a different character, and was termed the "sweating sickness." This disease was eminently malignant, inso-much that in those who were attacked scarcely one in a hundred escaped with his life. Milan was grievously inflicted with the disease in this year.

In 1489 no fewer than 17,000 of the troops of Ferdinand, then besieging Granada, were destroyed by a fever, which the Spaniards, from its spotted character, styled "*El Tabardiglio*." The disease revived in 1505, and was distinguished by pungent heat of the body but no thirst, foul tongue, and intense weariness.

The sweating sickness, which seems to have been a form of the plague (although easily distinguishable from the true Oriental disease), reappeared in western Europe in 1517, and in 1525 it marched to Lower Germany, the Low Countries, Holland, Denmark, and France, and another epidemic occurred in 1528, and was followed in 1531 by the plague in France; in 1539 at Basle, in Switzerland; in 1542 at Breslau, whereof nearly 6,000 persons died in twenty-two weeks; and in 1543 London was the victim of the disease.

"Between the years 1550-54, during a season of great scarcity  
"and a consequent crowded state of the large towns, a fever pre-  
"vailed in Tuscany, and destroyed upwards of 100,000 persons.  
"About the same time (1552) a similar fever devastated the army  
"of the Emperor Charles V during the siege of Metz. The disease  
"was so fatal that 500 or 600 people died daily in a city, and scarcely  
"half-a-dozen of those attacked recovered."—ANDREAS GRATIOLI.

It was not until the year 1563 that an epidemic of plague attacked Normandy. It first made its appearance at Havre-de-Grace, and was probably brought there by the crew of a vessel from the East. The disease soon became rife in England, and at London it raged to such an extent as to destroy 20,136 inhabitants.

In 1566 the notorious *morbus hungaricus* appeared in the Hungarian army of Maximilian II, and thence spread over the greater part of Europe, but was most fatal at Vienna. Here the disease was unprecedented, and was of an exceedingly contagious type; amongst its symptoms were intense headache, followed by delirium, a dry, black tongue, and abscesses of the neck.

This happened during great scarceness of money and the famine. The next year Constantinople, Alexandria, Lydia, Dantzic, Vienna, and Cologne were visited by the disease.

The plague next appeared in 1570 in Italy; in 1576 at Venice, where it raged furiously, and in the year 1588 it prevailed again at Basle.

Then after a period of quiescence in 1598 London was smitten, where 17,890 persons died, including the lord mayor and three aldermen.



In 1596 and 1597 the disease was rife in Westphalia, Cologne, Waldeck, and Hesse; this malignant fever being attended with convulsions, delirium, and deafness, and began with lividity of the hands and feet, fainting, and sudden cramping pains in the limbs and belly.

With the beginning of the seventeenth century the havoc continued amongst the population, for in 1603 we are told 36,269 died of the Oriental plague in London. In 1625 it raged for eight months in London, and reached its climax in the month of August; 41,313 persons succumbed to its unmitigated fury, and in 1636 fully 10,400.

In many of the intermediate years the deaths from pestilence amounted to 2,000, 3,000, or even 4,000, and upwards.

Other epidemics of plague visited Europe in 1636 (chiefly at Nimeguen) and 1640.

In 1643 the people were attacked with delirium, diarrhœa, convulsions, and profuse sweats, and in 1656 (chiefly at Naples). This, like other epidemics, was attended with greater fatality in the summer months.

We now come to the great plague of London, which broke out in December, 1664, during a season of extreme cold, and raged with great fury and alarm in August and September, 1665. It lasted for one year, during which period 68,596\* persons perished. The disproportionate mortality from the plague for this year is shown in the fact that in the previous year (1664) only six persons died from the disease, the year following the great plague 1,998 persons, and the year after that only 35. London is said to have lost more than one-fifth part of its inhabitants, and was not absolutely free from the plague till the year 1680.

In continuing the review of the plague's history in the eighteenth century, we are informed that the plague in 1710 increased the mortality in many parts of Europe, notably the eastern portion. The next year it made its appearance for the first time in Denmark, and spread thence to Bohemia and Germany.

The great plague of Marseilles broke out with great rapidity in 1720, and appears to be distinctly traced to the sailors of a vessel from the Levant. This epidemic, which lasted eighteen months, destroyed 80,000 persons. The disease under consideration re-appeared at Vienna in 1713, and showed itself at Aleppo in 1742, at Messina in 1743, in the Levant from 1759-63, at Holstein in 1764, at Moscow in 1771, at Malta in 1813.

Upper Egypt was the site of the plague in 1801, when 60,000 individuals perished, in six days 150 soldiers at Cairo lost their

\* Lord Clarendon says, that “many who could compute very well, concluded “there were in truth double that number who died.”—*History of his Own Life*.



lives, and in which town 40,000 persons were attacked by it. The epidemic reduced the Egyptian garrison 4,000 strong to 1,500 in less than a month.

It would appear that authors of the present day look upon the disease known as typhus as being closely related with the plague of the middle ages.\* The conditions giving rise to the former disease are similar to those propagating or favouring the plague; many of the symptoms are common to both, and both diseases occur in widespread epidemics. The plague of the torrid is probably identical with typhus of the temperate climes, and some two centuries back an epidemic of typhus would have been designated plague.†

The Oriental disease has not been seen in England for two centuries, but it prevails occasionally in Egypt and the east. It has appeared in the present century at the Russian ports in the Black Sea. Western Europe has not been visited by the malady since the serious epidemics which occurred in Provence in the years 1720 and 1721. In this century plague epidemics have broken out principally in south-eastern Europe, and particularly in the countries bordering on the lower Danube and the Black Sea, and also in the Balkan peninsula, all those places having been repeatedly visited during the second and third decades.

In 1813 it appeared in Malta and Gozo, killing between 4,000 and 5,000 people. Later still it invaded in 1816 Noja (Calabria), in 1818 Corfu, in 1819 Silesia, and lastly in 1828-29 it devastated the Russian army in Bulgaria, whilst there is reason to believe there have been yet more recently at Odessa cases of true Oriental plague. In many of these places the disease was new to the oldest physicians living. It had not been seen in Moscow for one hundred and fifty years, nor in Malta for one hundred and thirty-seven years, so that we dare not say that England is perfectly safe from future infection. Given a tropical summer, a cargo of plague-

\* The nosological definition of the plague by Dr. Cullen, is perhaps as correct as can be given in a few words:—"A typhus fever, in the highest degree contagious, and accompanied with extreme debility; on an uncertain day of the disease, there is an eruption of buboes or carbuncles."

The opinion that plague and typhus are types of the same disease is strengthened by the authority of Dr. Mackenzie, who resided thirty years at Constantinople. "The annual pestilential fever of that place," he observes, "very much resembles that of our gaols and crowded hospitals, and is only called plague when attended with buboes and carbuncles."

Sir John Pringle too observes "that though the hospital or gaol fever may differ in species from the true plague, yet it may be accounted of the same genus, as it seems to proceed from a like cause, and is attended with similar symptoms."

† An epidemic disease called typhus, was noted in England in 1809-16, another in 1826-28, and again in 1836, 1843, 1846-48. Typhus likewise occurred after the capture of Sebastopol in 1854-55, especially in the French and Russian armies.

stricken passengers, and an unhealthy, badly-managed port, the plague may yet be revived.

Since 1841 Europe has remained almost free from the plague, and since 1843 it has not even occurred in Asiatic Turkey, nor in Egypt since 1844.

The plague appeared in Mesopotamia in the winter 1873-74, and slightly each succeeding winter until that of 1876-77, when it sprung anew into activity. In south-western Persia a severe outbreak took place at Shuster, upwards of 2,000 persons being killed by the malady. The loss of life from the plague in Mesopotamia in 1876 has been estimated at 20,000. It appeared at Resht, a town lying between Teheran and the Caspian, in 1877. This outbreak was the most serious and fatal that has occurred since the plague, after having apparently become extinct in 1844, has again taken its place among modern pestilences.

"If this country has been so long forsaken by the plague as almost to have forgotten, or at least to be unwilling to own its natural offspring, it is because the parent has been disgusted with the circumstances under which that hateful birth was brought to light, has removed the filth from their doors in which it was matured, and has adopted a system of cleanliness fatal to its nourishment at home. But if ever this favoured country, now grown wise by experience, should relapse into former errors, and recur to her odious habits as in past ages, it is not to be doubted that a mutual recognition will take place, and she will again be revisited by her abandoned child, who has been wandering a fugitive among kindred associates, sometimes in the mud cots of Egypt, sometimes in the crowded tents of Barbary, and sometimes in the filthy kaisarias of Aleppo."—HANCOCK.

From this history we learn that in no era of the world has society been exempted from epidemics of fever or plague; but it has always committed its chief ravages at those distressing junctures when war and scarcity had been extending the dominion of evil beyond its ordinary limits. For example, after every eruption of the Goths into the Roman provinces, epidemics were sure to follow, and to thin the remains of population which the sword had spared. Indeed, on most occasions of general or local calamity, whether in ancient or modern times, contagion has made known its destructive presence, and in this way has the poison been perpetuated from age to age and from year to year. From the remotest times down to the present day it has been reproduced an infinite number of times, and in an infinite variety of constitutions, without any perceptible alteration in its character or laws. Sometimes it has extended only to a few, at other times it has spread among multitudes; yet, with whatever scope of operation it has

appeared, whether ravaging a kingdom or confined to a hamlet—it has never become wholly extinct, and has worked as a fatal spark among the neglected embers of society, ready to burst forth into a blaze at every favourable opportunity.

Dr. August Hirsch and Dr. M. Sommerbrodt, in connection with Dr. B. Kussner of Halle, formed a medical commission, sent by the German government into the province of Astrakan to make inquiry concerning the outbreak of plague. They reached the seat of prevalence of the disease at an earlier period than the British medical commissioners (Mr. W. H. Colvill and Dr. J. F. Payne), but all too late to make personal acquaintance with the disease; but the Germans were more fortunate in obtaining details as to its history, character, and progress. The plague broke out in October, 1878, and lasted till the end of January, 1879; it appeared in six places, but in one only—in Vetlianka—assumed an epidemic form. There appears to have been a direct transmission of plague from Resht to the Volga.

## II.—*Short Review of Howard's Biography and Labours.*

Towards the latter part of the eighteenth century a stimulus was given to those interested in the welfare of the populace by the exertions of John Howard. This man made himself acquainted with the conditions of the prisons not only in his own country, but with those on the continent and elsewhere.

Commonly characterised by the epithet of the philanthropist, Howard was the son of an upholsterer in St. Paul's Churchyard. He was born in 1726, and put an apprentice to a grocer in Watling Street. His father bequeathed to him a handsome fortune, and he applied himself to the study of medicine and natural philosophy. An acquaintance describes him as of low stature, with a speaking benevolence of countenance. In his manners he was modest and unassuming, and in his pursuits, steady, diligent, and active.

He was not characterised by noble birth. Placed in the world with no special natural advantages, he soon learnt how to make them for himself. John Howard, the great philanthropist of the future, in his youth had not the benefit of robust health, nor does he seem to have possessed many of those qualities which are often conspicuous in men destined to become great in the eyes of the world. He was no genius in the common acceptation of the term; he had not even a liberal education; but few men could boast of a larger amount of common sense, and power to bring the fruits of observation into practice than Howard.

He was in no respect an ordinary character. There was a simplicity attendant on his mode of acting and thinking, even in the more private relations of life. To the opinion of the world he



paid little attention, provided he had the approbation of his conscience. Duty, and duty alone, seems from the earliest period at which we are acquainted with his history to have been the sole director of his actions.

Personal experience with the woes of life is calculated to create in one, who is sensitive to their effects, a deep sense of commiseration for those who have to endure them.

Urged by motives of benevolence and curiosity, and zealous in the search of truth, he resolved to proceed along the path which he had already entered in prosecuting his investigations.

He set sail for Lisbon, but on his return he was taken prisoner and incarcerated in France. Before he reached Brest, says he, in his "*Treatise on Prisons*," p. 11, "I suffered the extremity of thirst, "not having for above forty hours one drop of water, nor hardly a "morsel of food. In the castle of Brest I lay six nights upon "straw, and observing how cruelly my countrymen were used "there and at Marlaix, I corresponded with the English prisoners "at Brest and Marlaix. I had sufficient evidence of their being "treated with such barbarity that many hundreds had perished, "and that thirty-six were buried in a hole at Dinan in one day." "Perhaps," adds Howard, "what I suffered on this occasion "increased my sympathy with these unhappy people." The hardship which he underwent, combined with the knowledge of prisons and the miseries of prison life which he had acquired as a county sheriff in 1773 and afterwards, determined him in devoting himself to prison reform. Sympathy for his countrymen was thus excited, and when freed from his bonds he made himself heard by the nation; he pleaded not for redress, but for pity on his compatriots.

The nucleus to the collection of Howard's acts of beneficence is exemplified by the treatment of his tenants at Cardington, near Bedford. After his liberation from prison life, he first paid his attention to the state of the buildings upon his land. Cottage after cottage was demolished to give room to healthier tenements, to increase the house comforts and pleasure of those who dwelt in them, to mitigate disease, in a word to improve the condition of the people. He was probably the first builder of model cottages, and recognising the want of a proper system of education among the paupers of the village, he erected a school for boys and one for girls.

In the capacity of high sheriff of the county of Bedford, to which he was appointed in 1773, John Howard's exertions testified that he was a man of considerable energy. Having at heart the relief of the oppressed, he lost no time in examining the condition of the prisons in his county. Thus came to light the abuses practised in the jails, the disregard to cleanliness and consequent ill-



health of the captives. The office of sheriff brought the distress of the prisoners more under his notice. At the jail at Brest he observed such scenes of calamity as he had before no conception of. He inspected the prisons in some neighbouring counties, and finding in them equal room for complaint, he determined to visit the principal prisons in England. The farther he proceeded the more shocking were the scenes he discovered, which induced him to exert himself to the utmost for a general reform in these places of confinement, considering it as of the highest importance, not only to the wretched objects themselves, but to the community at large. He thus introduced a thorough reform of morals into our prisons, in which he had found the most flagrant vices to prevail in such a degree that they were both seminaries of wickedness and villany.

Having compiled certain facts in regard to the existing abuses, he petitioned the House of Commons, which passed Acts of Parliament in 1774 for the better condition of the jails and bridewells with their inmates. Based on Howard's communication to the House, two new Bills were passed. The first Bill provided for the liberation, free of all charges, of every prisoner against whom the grand jury failed to find a true bill, giving the jailer a sum from the county rate in lieu of the abolished fees. The second Bill required justices of the peace to see that the walls and ceilings of all prisons within their jurisdiction were scraped and whitewashed once a year at least, that the rooms were regularly cleaned and ventilated, that infirmaries were provided for the sick, and proper care taken to get them medical advice, that the naked should be clothed, that underground dungeons should be used as little as could be, and generally such courses should be taken as would tend to restore and preserve the health of the prisoners.

Howard seems to have been single-handed in these acts of benevolence, for we do not read of any other sheriffs or persons of high position striving to improve the sanitary arrangements of these "pest-houses," in which jail fever prevailed to such an alarming degree. This jail distemper was all but unknown a few years after the passing of the Act, so stringently were the measures adopted to exterminate this disease through Howard's intercession.

The French jails underwent a careful inspection by himself, and great improvements were made in their condition. In his visit to the lazaretto at Marseilles, he ran many risks of being captured and imprisoned in the Bastille. He disguised himself as a French physician, obtained admission to the lazaretto, although the police were on the look-out for him with a description of his person in their hands.

Throughout Howard's labours, whether on behalf of institutions in distant lands or at home, we cannot fail to observe the wondrous

results which were manifested to large masses of the community, irrespective of party feeling or exhibiting favour to small sections. His work was a comprehensive grand scheme to benefit mankind, and this he effected by striking out boldly at the root of the evil.

Although John Howard had not passed through a medical curriculum, he was entrusted by Dr. Aikin and Dr. Jebb to make himself acquainted with the nature of the Oriental plague. Having visited Marseilles, Vienna, Smyrna, Italy, &c., and induced the most eminent practitioners to answer certain specific questions with which he was furnished by those at home, he presented a report to the above-named physicians on the plague as he found it in the East. The facts, or rather opinions, which he thus collected were necessarily more or less contradictory. The report which he drew up and published in 1789 had reference to the following:—

1. That the plague is contagious and may be communicated by near approach to, or actual contact with, infected persons or things, and by the inhalation of air impregnated with plague poison.
2. That the disease has not been known to arise spontaneously except by Verdoni and by Stoll, of Vienna, who doubted whether it could be considered as contagious.
3. That the interval between the infection and disease is about two days.
4. That the spring is the principal season in which it makes its first appearance.
5. That it was known to have originated in Egypt.

Howard also makes mention of the symptoms, treatment, proportion of deaths, usual length of the disease, and the means to be had recourse to for its prevention.

In his second tour in the East, having spent some time at Cherson—a Russian settlement on the Dnieper—he caught a malignant fever in visiting the Russian hospital, which carried him off on the 20th of January, after an illness of about twelve days. And surely, if the devotion of time, strength, fortune, and, finally, life to the sole service of his fellow creatures merits a token of esteem, it was deserved by one who (to adopt the expressive words of Burke) visited all Europe and the East, “not to survey the sumptuousness of palaces, or the stateliness of temples, nor to make accurate measurements of the remains of ancient grandeur, nor to form a scale of the curiosity of modern art, nor to collect medals or to collate manuscripts, but to dive into the depths of dungeons, to plunge into the infection of hospitals, to survey the mansions of sorrow and of pain, to take the gauge of and dimensions of misery, depression and contempt, to remember the forgotten, to attend to the neglected, to visit the forsaken, and to compare and collate the distresses of all men in all countries. His plan is

“original, and is as full of genius as it is of humanity. It is a voyage of discovery, a circumnavigation of charity, and already the benefit of his labours is felt more or less in every country.”

It is not a matter of surprise that a man who worked with the energy, and exposed himself to a multiplicity of sources of contagion (as John Howard was known to have done), that he should have caught the fever. Such is the case, and much may it be deplored. In the faithful discharge of his duties in Russia, Howard fell a sacrifice to the fever; he was stricken with the disease from which he never recovered, and died in 1790 as a martyr at his post, regretted by his countrymen, and leaving behind him an example of combined love and labour, which few could imitate and still less work to the same advantage as this noble philanthropist.

“We strive  
In offices of love, how we may lighten  
Each others burden in our share of woe.”—MILTON.

### III.—*Conditions under which the Plague Arises.*

Having reviewed briefly the past history of the Oriental plague, and the indefatigable labours of John Howard, it is necessary, before we consider the subject socially and internationally, to speak of the conditions giving rise to outbreaks of this disease.

It is now generally accepted that plague was an exceedingly contagious disorder, facts in support of this have been handed down to us by those who first recognised and described the disease, correct notions of contagion have descended from remote antiquity. Dr. Blackmore, in 1721, said “contagious particles may lodge in garments, raggs, and pieces of stuffs, in girdles of leather, &c. If they are placed in secret places from which the air is excluded, and if exposed to the air many years afterwards, will exert their contagion, and revive the plague.”

During epochs in which gross superstition and ignorance prevailed, physicians were not reticent in assigning as a cause of the pestilence certain cosmical influences. The plague, as many other diseases, was looked upon as being due to changes relating to the world, or the whole system of visible bodies including the earth and stars. Although this reflects no discredit on that age, we in modern times have abandoned the hypothesis that “superhuman and astral influences,” “telluric changes,” and “terrestrial corruptions,” can have any bearing upon the causation of malignant diseases, nor can we give credence to planetary conjunctions, “the grand conjunctions of Jupiter, Saturn, and Mars,” as being in any way connected with the origin of Oriental plague.

“Amongst natural causes,” says Dr. Hodges, in his “Letter to

"a Person of Quality," "the conjunctions of some planets, eclipses, comets, and such like appearances in the heavens, are by many accused as the authors of the plague, and upon this account some addicted to astrology, observing such appearances the foregoing years, have confidently asserted that our pest was the issue of these malevolent influences."

Dryden thus alludes to the malignant influence of the comets, in his "*Annus Mirabilis*," v. 291 :—

"The utmost malice of the stars is past,  
And two dire comets which have scourged the town  
In their own plague and fire have breathed their last,  
Or dimly in their sinking sockets frown."

It is doubtful whether all or any of these phenomena, apart from the distress and mental agitation and depression they would occasion, had any share whatever in even acting as predisposing causes.

The influences which gave rise to the origin of the disorder are obscure.

Galen, an eminent anatomist and physician, supposed that a "pestilential atmosphere" caused a putrid corruption of the blood, which was communicated to the whole body, therefore he recommends the burning of large fires to purify the air.

The contagiousness of leprosy was known to physicians of the second century, and hence they prohibited communication between the sick and healthy. Plato recognised the contagious power of ophthalmia, and so in the fourteenth century Pope Clement VI shut himself up in his house and was one of the few persons saved.

It is both interesting and instructive to notice the means adopted to prevent contagion in the year 1374. Plague patients were to be exposed to the air to die or recover. Those who had been in attendance upon the patient were to remain apart from others for ten days, not being allowed to have personal intercourse during this time. The importation of the disease being traced to a certain individual, that person to have his goods confiscated. Under penalty of death only those who were certified were allowed to attend plague patients, as it was known that the exhalations of the affected became the germs of a similar decomposition in those bodies which receive them and produce in these a like attack.

In 1399 injunctions were published to the effect that the city gates should be strictly guarded against strangers, that infected houses should be ventilated for ten days and purified by fires, rushes, straw, and clothes of the plague patients burned, and bedsteads disinfected in the sunshine.

Of the active nature of the contagion, the following passages from Hecker will give a striking idea. "Every spot which the



"sick had touched, their breath, their clothes, spread the contagion, and in all other places, the attendants and friends who were either blind to their nature or heroically despised it, fell a sacrifice to their sympathy. Even the eyes of the patient were considered as sources of contagion, which had the power of acting at a distance, either on account of their unwonted lustre or the distortion which they always suffer in plague, or in conformity with an ancient notion, according to which the sight was considered as a bearer of a demoniacal excitement."

The pestilential breath of the sick, who expectorated blood, caused a terrible contagion far and near, for even the vicinity of those who had fallen ill of plague was certain death, so that parents abandoned their infected children, and all the ties of kindred were dissolved.

In all attacks of the plague, a disease among domestic animals of a similar nature has appeared; it is probable that it is communicable to animals. "Boccaccio himself saw two hogs on the rags of a person who had died of plague, after staggering about for a short time, fall down dead as if they had taken poison. In other places multitudes of dogs, cats, fowls and other animals fell victims to the contagion, and it is to be presumed that other epizootics among animals likewise took place, although the ignorant writers of the fourteenth century are silent on this point."—HECKER.\*

All the signs of Oriental plague sometimes exhibit themselves in a country without it being possible to trace its origin to any foreign source, and there can be little doubt that a few isolated cases and mild epidemics have arisen independently of transportation. We find that the plague is not so eminently contagious where it fails to meet with a suitable soil, and that even in some cases it may originate spontaneously. Plague is known to have frequently returned to England till the latter end of the seventeenth century. There has been a total absence of genuine Oriental plague since, notwithstanding the great increase of trade by which it was supposed to be imported. The improved condition of our quarantine laws are surely inadequate to produce such immunity. Have the

\* The writer of a History of Cholera, published in the "Lancet," 1834, says: "From the earliest times it has been a matter of common observation that plagues and murrains among the lower animals, not unfrequently either preceded or accompanied the visitations to which mankind were subjected. Thus at the siege of Troy, we are told by Homer:—

‘μετὰ δ’ ἰὸν ἔηκε·

Δεινὴ δὲ κλαγγὴ γένητ’ ἀργύρεοιο βιοῖο.

Οὐρῆας μὲν πρῶτον ἐπωχετο, καὶ κύνας ἀργούς·

Αὐτὰρ ἔπειτ’ αὐτοῖσι βέλος ἐχεπευκὲς ἐφίμει·

Βάλλ’.”

laws of quarantine exempted us for more than two hundred years? The plague as well as other putrid diseases, prevailed to a very high degree in places where we know the condition of the towns to have been most offensively dirty, and it is instructive to observe how the health of the inhabitants returned in proportion as this cause of their complaints was removed. In September, 1666, while the plague was yet unsubsidied, happened the memorable fire of London; it raged several days together, and consumed everything from the Tower to Temple Bar. The tenements of the people and city generally were subsequently much improved, and we hear of very few cases of plague in the year succeeding the fire, although it is palpable there must have been many persons left who were capable of disseminating the disease.

The plague was known in Europe before nations were united by the bonds of commerce and social intercourse, hence it may be assumed that it sprung up spontaneously.

"The epidemics of 1626 and 1636 broke out in Whitechapel, "—that part of the town which was most densely crowded and "abounding in filthy dwellings. That of 1665 broke out first at "St. Giles', which at that time consisted of the most squalid habitations for the poor."—HEBERDEN, 1801. Is it not credible that filth generates disease?

Let us now look briefly into the social relations of this disease, and discuss the conditions under which it may arise. It will perhaps not be out of place in this essay to cite the following conclusions:—

1. Plague having shown itself in a house or locality, usually disseminates itself with great rapidity.

2. The chances of the disease spreading is in direct proportion to the degree of intercourse between the healthy and the sick.

3. Healthy individuals living in places where the plague is unknown are attacked on visiting infected persons at a distance.

4. Plague is likely to be imported by infected persons into localities previously free from it. It is probable that many epidemics of plague visiting countries remote from that originally affected have arisen, in the first place, in seaport towns, having been brought in the same way as in typhus fever, by an infected crew.

5. The success attending the measures taken to prevent its propagation, more especially the early removal of the sick, is a strong argument in favour of the contagiousness of the plague.

Plague is known to be transmitted by the exhalations from the skin and lungs, actual contact being unnecessary; articles of clothing strongly impregnated with the poison are also potent means of communicating the disease.

The history of all the great epidemics of plague points to their

having chiefly affected those parts of towns in which faulty hygienic conditions prevailed, where there existed the greatest overcrowding and deficient ventilation. Heberden thus describes Cairo:—"Grand Cairo is crowded by a vast number of inhabitants, who for the most part live very poorly and nastily. The streets are very narrow and close; twenty or thirty persons live in one small house. It is situated in a sandy plain, at the foot of a mountain, preventing a free circulation of air. A great canal passes through it, and this often quite dried up. Into it people throw filth, carrion, and the stench is insufferably offensive. Plague returns every year."

Proof is not wanting of the susceptibility to disease of people in towns the subject of famine and destitution; moreover, it is quite possible that filth may be under the above conditions a cause of maladies akin to the plague. Two centuries ago there were no greater hotbeds of plague than the jails of England, but, thanks to the philanthropy of Howard, the nation is now freed from such an imputation. One important cause of the plague making such rapid strides was the want of hospitals, or, as they were then called, "pest-houses." This want led to the disease spreading from infected persons to many or even all the inmates of the same house.

Our streets in London at the time of the plague were narrow, dark, and badly paved, the roads being covered with clay and rubbish, which necessarily absorbed much of the drainage from the houses. The sewers were above ground, and the supply of water to them very inadequate. The houses were badly constructed, and the floors covered with layers of rushes, which were allowed to remain undisturbed for twenty years or more, concealing dirt, and from which putrescent odours were exhaled. As regards the diet and living of the poor, these were rude and gross, and intemperance was too well known; the clothing of the people was far too cumbersome.\* Thus, water supply, ventilation, and drainage were insufficient, and the removal of offensive matters was entirely neglected.

This is the position of Ireland preceding an epidemic of fever (a modified form of plague): Ireland in 1797 was convulsed by internal rebellion; the upper and lower classes espoused opposite political opinions, and were arrayed against each other. The consequence was that the management of the large estates fell into the hands of agents who knew little about the tenantry, many of whom were deprived of employment. To complete the distressing history, there was a succession of bad harvests. An uncommon quantity of rain fell during the summer and autumn of 1797, which injured

\* It would also appear that the general habits of the citizens in no way counteracted the bad effects of their faulty architecture by domestic cleanliness.



the crops. The three following years were equally unfavourable, and a great deficiency of the usual supply of nourishment to the poor ensued. The price of bread, potatoes, and indeed of every necessary of life, rose enormously. The poor pawned their clothes, and even their bedding, for money to purchase food, and as a natural consequence it was common for several members of one family to sleep in the same bed. In 1801 there was an unusual abundant harvest, and the poor were again furnished with provisions of all kinds at a moderate price; the epidemic immediately began to decline, and by the end of the following year it had well nigh disappeared.

Dr. Guy sums up the subject of causation thus: “We have but  
 “to suppose exceptional weather, heavy falls of rain, and consequent inundations, a ‘certain epidemic constitution’ of the air,  
 “large gatherings of soldiers or civilians, and a nation of gluttons  
 “and drunkards living in filthy, unventilated houses in squalid,  
 “noisome streets, with their persons steaming in hot and uncleanly  
 “clothing, to be prepared for any conceivable amount of sickness  
 “and mortality.”

The immunity from the plague which all civilised countries now enjoys is unquestionably due more to the improved sanitary condition of our towns and villages than to enforced measures of quarantine. Defective ventilation coexisting with overcrowding, personal squalor and filthy apparel, with a deteriorated state of the constitution such as results from protracted starvation and other debilitating causes, favour the development of many diseases, including the plague. Alison says, with reference to the influence of destitution, “existence of epidemic fever is a most important test to the  
 “legislator of the destitute condition of the poor;” so the prevalence of the plague has been found to be in a direct ratio to the degree of privation. “It has hardly ever been known when the disease did  
 “not first begin among the poor.”—MEAD. And Heberden is no doubt justified in his remark, that “the pestilence commits its  
 “greatest havoc among the lower orders.” Hence it has been designated the poor’s plague. Therefore we are not surprised that increased attention to sanitary arrangements among the poorer classes is speedily followed by a subsidence of this disease.\*

#### IV.—*Socially, Religiously, and Politically Considered.*

We hear of a great many frightful stories told of nurses and watchmen who looked after the dying people, using them barbarously; starving them, smothering them, or by other means hasten-

\* The plague appears to have been more prevalent in the warm weather and autumn, less in the spring, and least of all in the winter; in fact it was an exotic plant, requiring warmth, and really foreign to our climate.



ing their end; and of watchmen being set to guard houses that were shut up where perhaps some person was left sick; that they have broken in and murdered that person and thrown the body into the dead cart scarcely cold. The indolent and dishonest augmented the ranks of those preying upon the infected. Avarice was so strong in some that they would run any hazard to steal and plunder, and without regard to the danger of infection, take even the clothes off the dead bodies and the bed clothes from others where they lay dead.

Some were guilty of atheistical, profane mirth, and mocking at everything which they happened to see that was religious among the people, especially to their thronging zealously to the church to implore mercy from heaven in such a time of distress. But it is also true that many people showed an extraordinary religious fervor, and as the church doors were always open, they would go in at all times, and locking themselves in separate pews, would be praying with great devotion.

The mortality among young children, who necessarily could not support and attend to their own interests, was disproportionately greater than that of adults. We are told they perished by thousands, and many other indirect causes of the increased mortality among those who were unable to care for themselves are apparent.

It seems to have been a great hardship in shutting up healthy people in infected houses, although this was sometimes done of their own free will. The system often led to grave mischief, besides causing the contagion to spread to these persons where they might have escaped. It occasioned great violence to be used against the attendants, who yielded sometimes by force, sometimes by bribery. The temptation to escape from the house or attendants was so great, that by means of stratagem and extraordinary devices the people deluded the vigilance of their keepers, and those who gave no thought to morality appropriated the property of the dying or dead; these extortioners being often taken off suddenly when they had only just received their ill-gotten treasures. Quarantine thus carried out ineffectually was a means of the people carrying the plague with them into the suburbs by personal intercourse and in their goods and merchandise. As an example of the oppression of the quarantine laws at the crisis of the plague, the city was surrounded with armed men to prevent the escape of either the diseased or sound, so that the healthy were confined to a vitiated atmosphere, and condemned to suffer the effects of the disease. We may be satisfied that if human lives were secured in one way, they were placed in extreme jeopardy in another.

The moral effects of the plague were extraordinary, and characteristic at once of the manners, barbarity, and ignorance of the

age. The panic was universal. Merchants poured their riches into the monasteries to the honour of the monks, who feared contagion with the money bags; the flagellants revived, and marched in long processions through the towns of Europe, until they attained political significance, and were crushed by the rulers and persecuted by the people; the fears of instant death banished all the social and kindly relations, and curdled the milk of human kindness. The social and moral influence in London showed itself by a thousand extravagancies, and the near expectation of death gave rise to acts of atrocity, cowardice, madness, and heroism. The aspect of the streets at the time of the plague is described by various writers as something terrible. “Some of the infected ran about, staggering like drunken men, and fell down dead in the streets, or they lay there comatose and half dead; some lay vomiting as if they had drunk poison, and others fell dead in the market, in the act of buying provisions. The plague spared no order, age, or sex. The divine was taken in the very exercise of his priestly office, and the physician while administering his own antidote, and though the soldiers retreated and encamped out of the city, the contagion followed and vanquished them. Many in their old age, others in their prime, most women, and still more children, perished; and it was not uncommon to see an inheritance pass successively to three or four heirs in as many days. There were not sextons enough to bury the dead; the bells ceased tolling, the burying places were full, so that the dead were thrown into large pits dug in waste ground in heaps, thirty or forty together; and those who attended the funerals of their friends one evening were often carried the next to their own long home.”—*Public Health*, Dr. GUY, 1870.

“Disorder’d funerals were hurried on,  
No decent mourners, nor no friendly groan,  
Neglecting other fates, all wept their own.”

LUCRETIUS, *Plague of Athens*.

The scene was affecting, awful, and full of terror, and the “best preparation for the plague was to run away from it.” This was the popular maxim, and being carried into effect by a very large section of the people in London, especially by the wealthy and those who had country residences, the aspect of the town became changed in a few weeks. As a result of the deserted state of the metropolis, all trade except such as related to immediate subsistence was put a stop to, employment, and therefore wages, ceased, and the wretchedness and poverty of the poor were therefore proportionately increased. We cannot doubt that the suspension of trade, the pecuniary embarrassments from the increased expense of living and privations of unusual severity favoured the spread of the plague.

It is almost needless to speak of the unprecedented stagnation of every branch of commerce and manufacture which marked the gloomy years of the plague, and the consequent scarcity of all kinds of employment. Exportation from England was stopped ; our merchants' manufactures were not received by any country, for they were as much afraid of our goods as they were of our people, our woollen goods being as retentive of infection as human bodies. The labouring poor, who in ordinary years had maintained themselves and families in tolerable comfort, were thrown out of work by thousands, and abandoned not only to want, but probably to that heart breaking depression of spirits, which perhaps is more deleterious to the health and functions of the human frame than many causes merely physical. Filth rendered the wretchedness of the poor scarcely susceptible of additional aggravation. Can it be wondered at, that the contagion spread widely in such a mass of apt materials, or that when fanned by the sigh of despair on the one hand, and by poverty on the other, it should be blown up into a raging epidemic ? Scarcity of labour, and the misery and the privations of every sort which thence result, are but the first in a train of greater evils that in such calamitous times assail the poor. Suffering too often leads then to vice and to crime. Their want of intellectual resources leaves them accessible to every sort of immorality, but more especially to a degrading intemperance ; for in the temporary excitement of intoxication, they hope to assuage the gnawing canker of the mind, which is little less intolerable than hunger itself. Again, how frequently does a man's conviction that "the world is not his friend, nor the world's law," goad him on to theft or robbery ? And surely if misery thus predisposes him to moral evil, we may cease to wonder that it should also render him greatly susceptible to natural disorders.

The governing power of the mind over our bodies has, we believe, a most salutary effect in assailing disease. Men of great mental energy have been enabled to retard the assaults of sickness and even the chilly approach of death. On the other hand, a sudden relaxation of these energies lays them open even to the minor causes of disease, or perhaps subjects them to ideal calamities. It has long been remarked that in armies, or other large bodies of men, disease makes little progress while the mind is strongly engaged, and the exciting passions kept alive by enterprise or success, but that as soon as great reverses are experienced, and mental depression ensues, disease makes very great havoc, being increased, not only in their general number, but in their individual fatality.

Many might be said not to have perished by the infection itself, but by the consequence of it, namely, by hunger and distress,



being without lodging, without money, without friends, without means to get their bread, and without anyone to give it them. But even the poor that remained in town were better off than those who fled into friendless quarters, and who were often found starved to death.

The working classes undoubtedly suffered to a great extent in consequence of the plague. Those who quitted their homes and weathered the pestilential storm returned to London poverty stricken and bereft of all social ties. But the wages of labour were raised on all sides, which increased the importance of the class, and when the plague had subsided the artisan received a reward which was proportionately far greater for work done than that previous to the pestilence.

The great murrain among the cattle was appalling, it was impossible to remove corn from the fields, therefore the price of food was augmented, which would have been worse had there not been a plentiful harvest in 1664.

The plague was a formidable enemy, armed with terrors that man was not sufficiently fortified to resist, nor prepared to stand the shock against.

It is certain that a great many of the clergy who were in circumstances to do it withdrew and fled for the safety of their lives, but it is true also that a great many of them stayed and fell in the calamity and in the discharge of their duties.

Men were callous to sufferings which seemed inevitable to misfortune as well as to crime, even horrible catastrophes when they occurred excited no more than a passing interest.

Let us ask what are the social features of the calamity which most naturally occur to every one who contemplates the scourge of pestilence in its formidable effects upon the inhabitants of a great city? "The general alarm and individual suffering, the silence of  
"the grass-grown streets, the thousands of human bodies, carried  
"in heaps, many of them unceremoniously, to a common grave  
"without any of the decent rites of sepulture, the despair of  
"some, the religious prostration of others, the depravity of many  
"on the very verge of eternity, the benevolence and fortitude of  
"the few, the mutual charities of kindred broken sometimes by  
"unnatural fears even before the final separation, the dread of  
"death and suspicion of danger at the sight of every friend, the  
"inefficiency of art, the universal horror and the uncontrollable  
"devastation, all these and many more occurrences at the height of  
"the calamity, afford ample room for reflections, and are calculated  
"to excite profound humiliation, and the workings of all the  
"common sympathies of our nature."—HANCOCK.

The court, which was then gay and luxurious, was justly con-



cerned for the public danger. All the plays were forbidden to be acted, the gaming tables, public dancing rooms and music houses were shut up and suppressed, for the minds of the people were agitated with other things, and a kind of sadness and horror at these things sat upon the countenances of the people. Death was before their eyes, and everybody began to think of their graves, not of mirth and diversions.

A picture of suffering was unveiled to which the diseases of the present time afford no parallel, and the frequent recurrence of epidemics must have cast a gloomy shade over society throughout the whole course of their career, and the plague was probably one of the greatest impediments to civilisation that history has ever had to record.

In the time of such distress, in which even the most undaunted could scarcely sustain their courage, dark mistrust was general, and all cheerfulness banished from the minds of the people, who were impressed with a feeling of alarm at the uncertainty of life.\*

"While the kind and generous were moved to acts of heroic self-sacrifice, the indifferent and selfish were guilty of acts of base desertion. The harsh and unfeeling grew cruel, the criminal class found rare opportunities for the indulgence of their predatory habits, and those addicted to the worst forms of dissipation, sinned under the pretence that the natural result of their vicious practices would prove a safeguard against the more fatal infection of the plague. 'Parents abandoned their infected children, and all the ties of kindred were dissolved.' 'Morals were deteriorated everywhere, and the influence and authority of every law, human and divine, vanished.' The doors and windows of houses infected with the plague were barricaded, and the inhabitants allowed to perish without mercy."—Dr. GUY.

We shall now discuss some of the more prominent religious influences which this fatal disorder had upon the minds of the people.

The suffering and misfortune which the plague inflicted caused the inhabitants—who were ever ready to find a victim—to suspect the Jews of poisoning the wells and springs. No sooner had this hypothesis become general, than these supposed delinquents were narrowly watched and reproached with severe invectives. It was merely a revival of the plea which laid guilt upon the Peloponnesians, who were said to have purposely contaminated all the wells in

\* The pious Byzantines who having felt the shock of an earthquake in 529, which to their minds was the forerunner of a great epidemic, rushed to their altars by thousands, and prostrated themselves, seeking to excel one another in devotion, but no sooner did they feel the ground firm beneath their feet, than they again abandoned themselves, without remorse, to all the vices of the metropolis.

Athens, to which the cause of the plague was ascribed. The canker of human vengeance waited not to prove the veracity of these gross assertions, and the persecution of these innocent Jews was not restrained by the few who showed their compassion and took them under their protection. They were taken, imprisoned, and subjected to the most horrible ill-treatment. Often burnt alive, sometimes destroying themselves in their own houses, many of the Jews, to save themselves, became baptized and embraced Christianity. Massacred everywhere, they were hastened to death by the people, who thirsted for their accumulations and pillaged their dwellings, and those who had the bravery to show that they could no longer tolerate such acts of injustice often shared the same fate. And when it came to light that the Christians themselves had frequently thrown bags containing noxious materials into wells in order to give occasion to murder and plunder, those who were first and foremost in their extravagant accusations against the Jews endeavoured to withdraw their charges, and make every effort to vindicate their conduct. But it was too late. In one city alone (Mayence) twelve thousand Jews were put to death.\*

The apprehensions of the people were strangely increased by the ignorance of the times; they appeared to be more addicted to prophecies and astrological conjurations, dreams, &c., than ever they were before.

The folly of the black art, which included pretenders to magic, fortune tellers, conjurors, witches, and also all sorts of deceivers, was vigorously combated by the ministers, who were averse to these practices.

We venture to think that the sudden enthusiasm of a tribe of people styled the Flagellants did indirectly much harm in those parts where they were tolerated. The influence which they had upon the mass aroused a morbid desire among the people to join their ranks. Commencing as a small and perhaps worthy army of crusaders in 1349, they offered prayers for the averting of the plague, and prayed for the sins of the people. In order to fortify themselves, they enlisted without discretion those who were devoid

\* Such of them as escaped death were sold, “body and goods, profit, pleasure, and service,” for such are the terms used by the Emperor Charles IV to the authorities of Frankfort—for the sum of 15,000 pounds weight in farthings (“Heller” is the term, the twelfth of an English penny). “In 1417 these unhappy people “were reduced to two families; twelve years later they consisted “of six families; and in 1495 they amounted to 104 souls only. In 1462 they “were prevented from building or dwelling near a Christian church; were confined “to one narrow locality, which grew into the Juden Gasse, or Jews’ Lane, which “was not only closed at both ends by gates every evening, but on Sundays and “festivals the inhabitants were interdicted from quitting the lane at all, and could “only appear abroad at any time in a prescribed garb.”—*Plague of Frankfort*, 1349.

of morality and in whom selfish motives were predominant; so that this body of men soon degenerated into a lawless mob. Gaining perhaps more credit than the priests themselves, they took possession of the churches, and their actions operating strongly on the minds of the people, they were able to amass considerable wealth. The brotherhood of the Flagellants led to such depraved vices that the Pope interceded, and resolved to arrest the further progress of these fanatics, and on pain of excommunication prohibited the continuance of these pilgrimages. There is very little doubt that, in consequence of the large multitude of people who followed these religious enthusiasts from place to place, the spreading of the plague was promoted. The celebration of a jubilee in 1350 caused a great eruption of the epidemic, from which scarcely one in a hundred of the pilgrims escaped.

“Merchants whose earnings and possessions were unbounded, coldly and willingly renounced their earthly goods. They carried their treasures to monasteries and churches, and laid them at the foot of the altar; but gold had no charms for the monks, for it brought them death. They shut their gates, yet still it was cast to them over the convent walls. People would brook no impediment to the last pious work to which they were driven by despair.”—HECKER.

So great was the shock given to Europe, that her losses caused a retrograding influence on all nations, the quantity of money swallowed up by the Church impoverished the people, these giving largely to atone for their sins. The money thus given often fell into the hands of ignorant laymen, who took the place of the priests that they might participate in the rich heritages which were left to the Church from all quarters.

The papal party took every possible pains to represent the English pestilence as a punishment for heresy and an evident warning against the triumphant doctrines of Luther. At Lubeck the monks taught similarly.

Can it be wondered that religion was in a great measure laid aside? The churches were often destitute, being bereft of their priests, and the instruction of the people was grievously impeded; covetousness was general, and those who had unjustly secured a good harvest were the most rapacious for gaining still more.

It is generally supposed that disease tends to heighten one's devotional feelings, and this was doubtless true in the time of the plague. Many people were engaged, at the risk of their own lives and the sacrifice of their personal interests, in endeavouring to arrest the progress of the evil and to mitigate the suffering of their fellow men. “In danger, self-preservation is dominant and self-denial put to severe proof;” nations, therefore, as men, attain

a higher degree of moral worth or sink deeper in ignorance and vice. Attendants and friends, who were either blind to their nature or heroically despised it, fell a victim to their sympathy. The same fate, however, awaited many of those who quitted the city. Flight from the infection seldom availed the fearful, for the germ of the disease adhered to them, and they fell sick remote from assistance and in the solitude of the country. “The sailors found no refuge in their ships; their vessels were often seen driven about on the ocean and drifting on shore, whose crews had perished to the last man.”—HECKER.

#### V.—*Internationally Considered.*

Much has been done towards the annihilation of the plague by the improvement of the sanitary condition of Europe and Egypt. The latter country has ceased to be a breeding place of the plague since improved sanitary legislation has obtained.

Although our knowledge of the nature of the plague and its mode of development is very imperfect, as well as the manner in which the contagion is communicated, quarantine measures would of necessity have to be re-established if the plague should occur in those regions with which we stand in direct communication; for we know that measures of quarantine or hygiene exercise an effect in limiting a malady to the district thus infected and favour its extinction.

The liability to contract the disease and the mortality are both very great only when the hygienic conditions are decidedly bad—as was the case during the middle ages, and still is the case to-day in certain parts of the East. It is therefore not very probable that Western Europe will again be subject to a devastating epidemic of the plague, provided she does not forget the lessons which bygone attacks of this disease have taught her.

The history of the prevention of this malady is very instructive, because it shows how suitable measures, when energetically carried out, can succeed in so perfectly conquering the severest of the epidemic diseases, that it no longer occurs except in half-civilised countries. This extraordinary result has been accomplished by quarantine measures rigidly carried out. Although these measures are generally considered a costly and troublesome interference with commerce, the country that neglects such precautions is incurring a grave responsibility.

We cannot concur with writers who have spoken of quarantine in such terms as the following:—“The quarantine laws are not only absurd and needlessly burthensome to commerce, but perverse and barbarous in the extreme, independent of the injurious fears induced, being as dangerous to communities as



"they militate against common sense and humanity." A. Hirsch said that the extinction of the plague was a gradual process, and kept pace in great measure with the development and perfection of the quarantine system, as carried out, not only with reference to the East, but also with neighbouring countries of Europe. "Indeed I cannot understand how anyone pretending to criticise facts in an unprejudiced manner, and with due regard to the condition of the plague in the East, can for a moment hesitate to attribute the chief cause of the disappearance of the plague from European soil to the development of a well regulated quarantine system."

England has always been foremost in the necessary laws attending hygiene, and thanks to her natural isolation from continental countries, as well as certain climatic and topographical conditions, by which she is enabled to maintain with impunity the free *pratique* of her ports.

It is to the adoption and enforcement by judicious legislative enactments of prophylactic measures based on scientific views that we should direct especial attention, for by such measures we not only to a great extent prevent disease by rendering the body less susceptible of it, but when attacked by it we lessen its fatality.

The danger attending the intercommunication of the sick with the healthy was recognised by the ancients. In the time of Moses the lepers were separated from the rest of the people, and before the Christian era the Persians expelled the lepers from the towns. It is to Fracastor we owe the methodical establishment of quarantine measures in the sixteenth century. He was one of the first expostulators of the doctrine of contagion, and showed that a specific virus was exhaled from the body and was carried in the clothing.

Self preservation is a law of universal prevalence, and among mankind this law is strikingly exemplified in measures adopted to prevent the introduction of pestilential diseases from infected localities. No blame should attach to the adoption of the most extreme measures where necessity indicates; the warrant for such action was the ancient dictum *salus populi suprema lex*.

Two things appear necessary to prevent the importation and spread of epidemic contagious diseases. 1. The careful inspection of vessels and their crews before being permitted to have intercourse with seaport towns. 2. The improvement or maintenance of the hygienic conditions of the threatened community.

If the idea of the plague being entirely dependent on local conditions be admitted, external quarantine is an useless encumbrance. But it is not so, and therefore during epidemics of this disease a country which opens its doors for the reception of goods and the free intercourse of the people from the seat of the malady,

is culpable of neglecting those preventive measures which have been proved to be so necessary in such times.

Again, the partisans of a spontaneous origin of the disease ascribe the entire trouble to defective hygienic conditions, and overlook the fact that epidemics often invade the most salubrious locality, and therefore must be combated by other measures than those which are purely hygienic. Certainly hygiene alone cannot confer an *immunity* comparable to that which keeps the pestilence at a distance or at least weakens its transmissible properties.\* We are convinced that by mild and judicious quarantine regulations many a land has been spared from the devastations of an epidemic.

The plan of non-intercourse though justifiable in case of surprise, without preventive organisation to meet danger, is quite out of harmony with the civilisation of our age in the needless hardships it imposes. Total exclusion of persons and merchandise is an obstructive quarantine, and probably will never be tolerated by any country. Quarantine and commerce have been for centuries antagonistic, and it rests with the legislator to adjust the claims of both, so that while quarantine confers advantages on those it protects, it should not impose grave inconveniences on those it interdicts.

As regards out going vessels by sea no interference would be necessary, since the quarantine at each port should be competent for its own protection.

Quarantine cannot and never has been rendered entirely effectual. It is impossible to shut up within certain limits a population earnestly desirous of transgressing them. A single person evading the quarantine may render all the preceding precautions of no avail, and with the knowledge of the present day the adoption of the measure *per se* would almost justify a charge of insanity against any rulers who put their entire trust in it. Unless the professors of sanitary science are wrong in first principles, or unless gross negligence is displayed where vigilance is a duty, a country which can boast of a good system of hygiene may look for the arrival of plague without great terror, and without imposing a single restriction either upon the movements of healthy persons or upon the transit of their goods.

It may be questioned whether, socially, the epidemical visitations of a contagious disease like the plague are not productive of more misery than war itself, fertile as it unquestionably is in every

\* And as to immunity that could be supposed to result from a change in the habits of society, and particularly from the superior attention paid to cleanliness and ventilation in our cities, we must confess our apprehensions that any seeds of disease which depend for their development upon filth, will not perish for want of a hotbed in many districts of the larger cities of the three kingdoms.

species of calamity. The actual victims of war are not only numerically fewer, but for the most part belong exclusively to a class openly and almost voluntarily devoted to war horrors, while epidemical sickness is an evil that threatens indiscriminately every class of the community, and is chiefly afflicting from its invading that cherished sanctuary of domestic life in which the happiness of every individual must mainly centre. The universality of the infliction, the anguish of the immediate sufferers, the distress of the relatives, and often the subsequent poverty and desolation of families, conspire to fill up the measure of misfortune, and give to the destructive operations of an epidemic a character of the deepest gloom, which is not like the fatal scenes of a battle field, cheered by one spark of valour or patriotism, nor redeemed by one consoling sentiment of duty or fame.

## APPENDIX.

A.—In what manner the plague increased, will appear from the following weekly account:—\*

Dates.	Mortality.	Dates.	Mortality.
Feb. 7—14, 1665 .....	1	Aug. 29—Sept. 5, 1665.....	6,988
April 18—25.....	2	Sept. 5—12 .....	6,544
May 2—9.....	9	„ 12—19 .....	7,165
„ 9—16.....	3	„ 19—26 .....	5,533
„ 16—23.....	14	„ 26—Oct. 3 .....	4,929
„ 23—30.....	17	Oct. 3—10 .....	4,327
„ 30—June 6 .....	43	„ 10—17 .....	2,665
June 6—13.....	112	„ 17—24 .....	1,421
„ 13—20.....	168	„ 24—31 .....	1,031
„ 20—27.....	267	„ 31—Nov. 7 .....	1,414
„ 27—July 4 .....	470	Nov. 7—14 .....	1,050
July 4—11.....	727	„ 14—21 .....	655
„ 11—18.....	1,089	„ 21—28 .....	333
„ 18—25.....	1,043	„ 28—Dec. 5 .....	210
„ 25—Aug. 1.....	2,010	Dec. 5—12 .....	243
Aug. 1—8.....	2,817	„ 12—19 .....	281
„ 8—15.....	3,880		
„ 15—22.....	4,237		
„ 22—29.....	6,102		
		Total died from all causes.....	97,306

\* With respect to the progress and termination of the plague, the disease appears to be subject to the same laws as regulate the course and termination of other epidemics; it is most fatal at its first outbreak, and becomes less virulent as it increases in extent. The increased mortality which occurs during the advance of the plague, and which we have shown to be at its height in the month of September, arises from the *increased extension*, and not from the greater malignancy of the disease.

B.—The deaths from the plague, as compared with all other diseases, are thus tabulated in the Bills of Mortality of 1665, by which it will be seen that nearly 40,000 died in the five weeks between the 22nd August and the 26th September:—

Dates.		Of all Diseases.	Of the Plague.
Aug.	8—15 .....	5,319	3,880
„	15—22 .....	5,568	4,237
„	22—29 .....	7,496	6,102
„	29—Sept. 5 .....	8,252	6,988
Sept.	5—12 .....	7,690	6,544
„	12—19 .....	8,297	7,165
„	19—26 .....	6,460	5,533
„	26—Oct. 3 .....	5,720	4,929
Oct.	3—10 .....	5,068	4,327
		59,870	49,705

C.—The numbers that fell by the plague, as given in the Bills of Mortality from the year 1603 to 1679:—

Years.	Died of the Plague.	Years.	Died of the Plague.	Years.	Died of the Plague.
1603 .....	36,269	1629 .....	—	1655 .....	9
'04 .....	896	'30 .....	1,317	'56 .....	6
'05 .....	444	'31 .....	274	'57 .....	4
'06 .....	2,124	'32 .....	8	'58 .....	14
'07 .....	2,352	'33 .....	—	'59 .....	36
'08 .....	2,262	'34 .....	1	'60 .....	14
'09 .....	4,240	'35 .....	—	'61 .....	20
'10 .....	1,803	'36 .....	10,400	'62 .....	12
'11 .....	627	'37 .....	3,082	'63 .....	9
'12 .....	64	'38 .....	363	'64 .....	6
'13 .....	16	'39 .....	314	'65 .....	68,596
'14 .....	22	'40 .....	1,450	'66 .....	1,998
'15 .....	37	'41 .....	3,067	'67 .....	35
'16 .....	9	'42 .....	1,824	'68 .....	14
'17 .....	6	'43 .....	996	'69 .....	3
'18 .....	18	'44 .....	1,492	'70 .....	—
'19 .....	9	'45 .....	1,871	'71 .....	5
'20 .....	2	'46 .....	2,436	'72 .....	5
'21 .....	11	'47 .....	3,597	'73 .....	5
'22 .....	16	'48 .....	611	'74 .....	3
'23 .....	17	'49 .....	67	'75 .....	1
'24 .....	—	'50 .....	15	'76 .....	2
'25 .....	35,417	'51 .....	23	'77 .....	2
'26 .....	134	'52 .....	16	'78 .....	5
'27 .....	4	'53 .....	6	'79 .....	2
'28 .....	3	'54 .....	16		

In the four plague years of 1603, 1625, 1636, and 1665, as compared with the deaths from all causes, those from the plague were 69 per cent.

Nearly as many died from the plague in 1665, as from all causes in 1849.



D.—Deaths from Plague and other Diseases in the Parish of St. George the Martyr, Southwark, from 1602 to 1667.

Date.	Mortality.	Remarks.
1602 ....	215	
'03 ....	938	Year of plague—36,269 died of the plague in London
'20 ....	296	—
'25 ....	1,464	Year of plague—35,417 died of the plague in London
'34 ....	435	—
'36 ....	980	Year of plague—10,400 died of the plague in London
'40 ....	261	—
'60 ....	179	—
'65 ....	413	Year of plague—68,596 died of the plague in London
'66 ....	134	—
'67 ....	214	—

E.—The mortality from the *Black Death* in the fourteenth century was as follows:—

Place.	Mortality.	Remarks.
Aleppo .....	—	500 daily
Gaza .....	22,000	Most of the animals in six weeks
Cairo .....	15,000	—
Cyprus .....	—	Almost all its inhabitants
Genoa .....	40,000	—
Parma .....	40,000	—
Naples .....	60,000	—
Siena .....	70,000	—
Rome .....	—	An incalculable number
Venice .....	70,000	One-third of its population
Florence .....	100,000	In four months
Valencia .....	100,000	300 a-day
Vienna .....	40,000	1,800 in one day
Erfurt .....	16,000	1,200 interred in one cemetery
Avignon .....	150,000	1,800 in the first three days
Weimar .....	5,000	—
Lumburg .....	2,500	—
Marseilles .....	56,000	In one month
Narbonne .....	30,000	—
Paris .....	50,000	—
Strasburg .....	26,000	—
St. Denis .....	16,000	—
Lubeck .....	9,000	—
Basle .....	14,000	—
London .....	100,000	—
Norwich .....	51,000	—

In China the mortality was 13 millions, in Germany  $1\frac{1}{4}$  million, Europe 40 millions, and Asia and Africa (exclusive of China) 24 millions.

F.—In the following chronological table of some of the principal plagues upon record, we have doubtless included the mention of many, which although described under that name are probably a dissimilar disease, writers having applied the terms pestilential and pestilent in a generic sense to diseases specifically different.\*

From B.C. 1495 to A.D. 1877.

Date.	Locality.	Mortality.	Remarks.
B.C.			
1495.....	Egypt .....	—	{ During the reign of Pharaoh, King of Egypt, A.M. 2509.— <i>Exodus</i> xii
'71.....	Desert of Paran .....	14,000	—
'90.....	In the wilderness.....	—	<i>Numbers</i> xi
1310.....	Æguia (island of) ...	—	Ovid's <i>Metam.</i> lib. vii
1141.....	{ Ashdod, a place between Guza and Joppa .....	—	{ Among the Philistines, 1 <i>Sam.</i> v and vi
'90.....	Troy (siege of).....	—	{ In the Grecian camp, Homer's <i>Iliad</i> , lib. i
1017.....	Canaan .....	{ 70,000 in three days	{ In the time of David, 2 <i>Sam.</i> xxiv
790.....	Rome .....	—	—
738.....	„ .....	—	{ Plutarch's <i>Life of Romulus</i>
710.....	„ .....	185,000	{ Assyrian armies at the siege of Jerusalem
694.....	{ —	—	{ Described by Livy
671.....	{ —	—	{
545.....	Velitrae .....	Depopulated .....	Small town near Rome
594.....	Jerusalem .....	{ One-third of inhabitants ...	{ —
480.....	Army of Xerxes .....	150,000	—
476.....	Spain .....	—	—
463.....	Rome.....	—	Livy, iii, 6
452.....	„ .....	{ Half the inhabitants.....	{ „ 32
430.....	Athens .....	—	{ Continued without interruption for five years.— <i>Thucydides</i> , ii, 48
427.....	Spain (from Egypt)....	—	—
404.....	Carthage .....	Depopulated ...	{ <i>Justin</i> , xix, 2; <i>Diod. Sic.</i> , xiii
393 and 383	{ Gaul and Rome (armies of) .....	—	{ —
366.....	Rome.....	10,000 daily	{ Livy, vii, 1; Short, <i>On Air</i>
362.....	Murviedro (Sicily) ...	—	—
346.....	{	—	{
332.....	{ Rome.....	—	{ Livy
296.....	{	—	{
291.....	{	—	{
237.....	Cadiz .....	—	—

\* The number of deaths appear in some cases very large, this is perhaps due to famine, want, and privation, which are so frequently co-existent with pestilence.

*From B.C. 1495 to A.D. 1877—Contd.*

Date.	Locality.	Mortality.	Remarks.
B.C.			
218 .....	Carthaginian armies....	—	{ On their route to besiege Taguntum
216 .....	Carthage .....	—	
213 .....	{ Carthaginian and } Roman armies.....	—	{ Before Syracuse, <i>Livy</i> , xxv
206 .....	Capua .....	—	
182-177 .....	Rome and all Italy ...	—	Livy, xli, 21
144 .....	Rome.....	—	—
140 .....	" .....	—	—
134 and 130	Italy .....	—	—
126 .....	Numidia .....	800,000	{ Orosius, lib. v
—	Seacoast of Carthage .	200,000	
89 .....	Roman armies ...	10,000	—
88 .....	Rome (people in).....	30,000	—
60 .....	Spain.....	—	? Leprosy
A.D.			
68 .....	Rome.....	—	{ Tacitus Annals, xv Orosius, lib. vii
114 .....	Wales .....	45,000	
187 .....	Rome and Italy .....	—	—
158 .....	Arabia .....	—	—
175 and 178	Rome.....	—	—
252 .....	Alexandria .....	—	—
262 .....	Rome.....	5,000 daily	Zonaras, lib. xii
310 .....	England .....	40,000	
325 .....	Britain .....	—	—
365-394 .....	Italy and Syria.....	—	—
400 .....	{ Asia, Africa, and } Europe .....	71,719	Nicophorus, xiii
450-67 and } 473 .....	Rome.....		
562 .....	Scotland .....	—	—
517 .....	Palestine .....	—	—
544 .....	France .....	—	? Dysentery
565-610 ....	{ Especially France, } Germany and Italy }	—	{ A plague raging, with intermissions, in most parts of the world.— <i>Niceph.</i> , xvii
590 .....	Rome.....	—	
654 .....	Constantinople.....	—	—
664 .....	South Britain .....	—	—
665-683 .....	England .....	—	With intermissions
696 .....	Constantinople.....	—	
703 and 713	Scotland .....	—	—
717, 724, and 729 } 732 .....	{ Constantinople..... } Norwich in Eng- land, and Syria ... }	30,000	—
740 .....	{ Various parts of } Europe and the } East .....		
762 .....	Wales. In Chichester	34,000	Raged for 260 years
853 .....	Scotland .....	—	
896 .....	{ Gaul, Germany, and } Italy .....	—	—

*From B.C. 1495 to A.D. 1877—Contd.*

Date.	Locality.	Mortality.	Remarks.
A.D.			
937.....	England.....	—	—
940.....	North of Europe.....	—	{ Affecting chiefly the cattle
964.....	—	—	
1005.....	—	{ Half the human race .....	Emperor Otho's army
'12-25 ... {	England and other parts of Europe ... }		Raged for three years
'27.....	—	—	{ Convulsive disease ; dance of St. Vitus
'29-31 and 1033 }	England and Gaul ...	—	
'64.....	Saracen army .....	{ Many thou- sands .....	Marching to invade Rome ; raged for two years
'68.....	York and Durham ...		—
'75.....	Constantinople.....	—	—
'96-1111 ...	Europe (various parts)	—	—
1120..... {	Various parts of the globe .....	—	Lasted 272 years
'26-28, 1133-46 }	England .....	—	
'72.....	„ .....	—	? Dysentery
'83.....	„ and Rome....	—	
'93-96, 1200-1201 }	„ .....	—	—
'17.....	Damietta .....	{ Only 3 persons out of 70,000 survived .....	—
'35.....	London.....		20,000
'37.....	Egypt .....	—	{ Dancing disease among the children
'78.....	Utrecht.....	—	
'83.....	Spain.....	4,000	{ King Philip of France invaded Spain with 20,000 infantry and 8,600 cavalry
1335.....	England.....	Great mortality	
'45..... {	Spain, and spread over the whole world .....	Leaving scarcely a quarter of the human race ... }	—
'46.....	Florence .....	60,000	—
'47.....	London.....	50,000	—
—	Venice .....	100,000	—
—	Lubeck .....	90,000	—
—	Spain.....	200,000	—
1348..... {	Syria, Greece, Italy, Cyprus .....	—	—
'50-51 .....	Ireland .....	—	—
'52.....	China.....	900,000	—
—	London .....	50,000	{ Interred in one grave-yard
1355.....	Florence .....	100,000	
—	Norwich .....	37,104	—
—	Yarmouth.....	7,502	—



*From B.C. 1495 to A.D. 1877—Contd.*

Date.	Locality.	Mortality.	Remarks.
A.D.			
1363.....	Spain.....	—	—
'65.....	Cologne.....	20,000	—
'68-70 .....	England and Ireland .	—	—
'71.....	Barcelona.....	—	—
'72.....	{ Germany, Egypt, Greece, and all the East..... }	Lubeck 90,000	—
'74.....	{ Holland, France, and Rhenish pro- vinces..... }	—	{ Dancing disease of St Vitus or St. John
'79.....	England.....	—	—
'83.....	Seville.....	—	—
'84.....	Mallorca.....	—	—
'87.....	Portugal.....	—	—
'91.....	{ England, York and Norfolk especially }	—	—
'94.....	Spain.....	—	—
1401.....	London.....	30,000	—
'10.....	Seville.....	—	—
'18.....	Strasburg.....	—	Dancing disease
'29.....	Barcelona.....	—	—
'39.....	{ Huescar in the king- dom of Aragon ... }	—	—
'50.....	{ Italy, Gaul, Ger- many, and Spain.. }	—	—
'65.....	Italy.....	—	—
'68.....	Parma.....	—	—
'82.....	France.....	—	—
'85.....	Seville.....	—	{ "Sweating sickness" in England
'88.....	Andalusia.....	—	—
'89.....	Barcelona.....	—	—
'93.....	Mallorca.....	—	—
'95.....	Saragossa.....	—	—
'99.....	Britain.....	London 30,000	{ Spread to Brabant, Flanders, &c.
1529.....	England.....	—	—
'30.....	Germany.....	—	Sweating sickness
'35.....	Cork and Dresden ...	—	—
'37-39 .....	England.....	—	—
'41.....	Constantinople.....	—	—
'43.....	Metz.....	—	—
'47.....	{ England, Holland, and Germany..... }	—	—
'56.....	Spain.....	—	Spotted fever
'58.....	Murcia.....	—	—
'62.....	{ London and most of the principal cities of Europe..... }	—	—
'64.....	Barcelona.....	Saragossa 10,000	—
'65.....	Lyons.....	—	—
'66.....	"Morbus Hungaricus"	—	—
'70.....	Spain.....	—	—
'72.....	Dresden.....	—	—
'74.....	Spain and Italy.....	—	—

*From B.C. 1495 to A.D. 1877—Contd.*

Date.	Locality.	Mortality.	Remarks.
A.D.			
1579.....	Rome.....	4,000	—
—	Lubeck .....	8,000	—
—	Hamburg .....	3,000	—
1580-81 .....	Cairo and the East .....	500,000	—
'82.....	Spain, especially Cadiz .....	—	—
'85-86 .... {	Narva and Revel, in } Livonia .....	Revel 6,000	—
'89.....	Seville .....	—	—
'90.....	Dresden.....	—	—
'93.....	Malta .....	{ 70,000 in Lisbon } and Spain .... }	—
1600-02 .....	Muscovy .....	500,000	—
—	Livonia .....	30,000	—
1603.....	London .....	36,000	—
—	Paris .....	2,000 weekly	—
1606.....	Throughout Europe...	—	—
'09.....	Seville .....	—	—
'10.....	Granada .....	—	—
—	Constantinople .....	200,000	—
1613..... {	France and Con- } stantinople .....	—	—
'16..... {	Germany, Denmark, } Egypt and Levant }	—	—
'22.....	London .....	{ 1st year 8,000 } 2nd „ 11,000 } 3rd „ 12,000 } 4th „ 35,417 }	Lasted four years
'25.....	Throughout England	London 30,000	—
'26.....	Lyons .....	60,000	—
'34.....	Dresden.....	—	—
'35.....	Leyden and Nineguen	Leyden 20,000	—
—	—	London 10,000	—
1644.....	Madrid .....	—	—
'49.....	Spain.....	200,000	—
'53.....	Moscow .....	200,000	—
—	Riga .....	9,000	—
—	Amsterdam .....	13,200	—
—	Leyden .....	13,000	—
1656.....	Naples .....	240,000	{ Three-quarters of the } inhabitants
—	Benevento.....	9,000	—
—	Genoa .....	10,000	—
—	Rome.....	10,000	—
—	Neapolitan territories	400,000	—
1662.....	Venice .....	60,000	—
'63.....	England .....	—	—
'64.....	Amsterdam .....	24,000	—
'65.....	London .....	68,596	—
'73.....	Spain.....	—	—
'75.....	Malta .....	11,300	—
'77..... {	Murcia and Cartha- } gena.....	—	—
'79.....	Germany .....	—	—
'91.....	Germany .....	—	—
'98.....	Spain.....	—	—

*From B.C. 1495 to A.D. 1877—Contd.*

Date.	Locality.	Mortality.	Remarks.
A.D.			
1705.....	Ceuta.....	—	—
'10.....	Copenhagen .....	25,000	{ In six months the "sweating sickness"
—	Stockholm.....	30,000	
1720.....	Marseilles .....	—	—
'22..... {	Vienna, Hungary, } and in the East ... }	—	—
'27.....	Spain .....	—	Epidemic mania
'32.....	London .....	1,500 in one week	—
'35.....	Egypt .....	Many thousands	—
'36.....	Cairo .....	100,000	{ 7,000 buried daily for some days
'40.....	Ireland .....	—	
'43.....	Aleppo .....	—	—
'51.....	Cordova..... {	40,000 in Cairo	{
		and Constantinople .....	
'51-60 .....	Ireland and France...	30,000 in Cyprus	—
'61.....	Carthage.....	—	—
'62..... {	Aleppo, Jerusalem, } and Damascus..... }	—	—
'63.....	Naples .....	20,000	—
'69.....	Bengal .....	"3 millions and upwards" .... }	—
'70.....	Poland and Russia ...	20,000	—
—	Bohemia .....	168,000	—
—	Constantinople..... {	1,000 buried	{
		daily for some weeks .....	
1771.....	Moscow .....	133,299 in 18 mos.	—
—	Bassora .....	80,000	—
1783-85 ... {	Egypt, Dalmatia, } Constantinople, &c. }	—	—
'92.....	Egypt .....	800,000	—
'99.....	Barbary.....	3,000 daily	{ In the French army in Egypt
—	Fez.....	247,000	
1809.....	Portugal .....	—	Among British troops
'10.....	Gibraltar .....	Out of 14,000, } only 28 escaped }	—
'12.....	Constantinople.....	160,000	—
'13.....	Malta .....	4,483	—
'15.....	Corfu.....	—	—
'17..... {	Throughout the ha- bitable globe .....	—	—
'41..... {	Syria, especially } about Erzeroum.... }	—	Dancing mania
'43.....	Asiatic Turkey.....	—	
'44.....	Egypt .....	—	—
'73-76 .....	Mesopotamia .....	20,000 in 1876	—
'77.....	Resht, near the Caspian	—	—

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—	Biography (Select), Howard.....	„ 1822.	12mo.
BUCK .....	Public Health.....	„	8vo.
DE FOE, D.....	A Journal of the Plague Year.....	„ 1872.	8vo.
—	Encyclopædia Britannica. Howard's Biography. Eighth edition.	Edinb., 1856.	8vo.
GUY.....	Public Health.....	London, 1870.	8vo.
HANCOCK .....	Researches into the Laws and Phenomena of Pestilence, including a Medical Sketch and Review of the Plague of London in 1665.	„ 1821.	8vo.
HEBERDEN, Wm. (the younger)	Observations on the Increase and Decrease of different Diseases, and particularly of the Plague.	„ 1801.	4to.
HECKER .....	Epidemics of the Middle Ages, from the German of J. F. C. H., translated by B. C. Babington. Third edition.	„ 1859.	8vo.
HOWARD.....	An Account of the Principal Lazarettos in Europe, with various Papers relative to the Plague, &c.	Warrington, 1789.	4to.
MACGRIGOR, Sir J.	Medical Sketches .....	London, 1804.	8vo.
MEAD, R. ....	A Discourse on the Plague. Ninth edition.	„ 1744.	8vo.
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## MISCELLANEA.

## CONTENTS :

	PAGE		PAGE
I.—The Agricultural Returns for the Year 1880 .....	643	VII.—Statistics of Australasian Colonies .....	698
II.—The Corn Crops of 1880 ...	664	VIII.—Agricultural Distress and Bills of Sale .....	700
III.—Ten Years' Results of the London School Board ....	670	IX.—Notes on Economical and Statistical Works .....	705
IV.—The Annual Local Taxation Returns of 1878-79 .....	683	X.—Notes on some Additions to the Library.....	709
V.—Ten Years' Telegraphy .....	687	XI.—List of Additions to the Library .....	711
VI.—The Population of the Earth	690		

I.—*The Agricultural Returns for the Year 1880.*

THE following report of Mr. R. Giffen, Chief of the Statistical and Commercial Department of the Board of Trade, on the Agricultural Returns of Great Britain for the year 1880, with summary tables, is given in continuation of a series of similar notices to be found in the *Society's Journal* for previous years:—

“I have the honour to submit the Agricultural Returns of Great Britain for the year 1880, the data for which were collected, as in previous years, by officers of the inland revenue department in Great Britain, and by officers under the direction of the local authorities in the Isle of Man and the Channel Islands.

“The returns have been again collected on the 4th of June, the change to that date from the 25th of the month having been made in 1877. The usual summary of the returns was issued to the newspapers on the 17th of August, and a slight addition was made to the information then published by distinguishing the sheep of one year old and above from those under one year old, so as to show as soon as possible the losses among sheep and lambs separately consequent on the disease of the past wet season. The present complete tables and report are now ready at the end of September, as has been the case since the earlier date of collection was adopted.

“This department is again much indebted to the farmers of Great Britain for the trouble they take every year in supplying the necessary information to the collectors, the acreage of land estimated by the Inland Revenue Officers in default of returns being only 1,640,571 acres, or a slight increase on the figures for 1879, while there is still a considerable reduction compared with previous years, the estimates for 1878 having been 1,768,703 acres, and in 1877, 2,036,931 acres. Of the acreage thus estimated only 2 per cent. is in Scotland, where the average size of the holdings of which there are no returns, and estimates are necessary, is between six and seven acres only. In England the farmers who refuse or neglect to oblige the Board of Trade in this respect farm holdings averaging 145 acres each.

"In Great Britain returns were this year obtained from 554,058 occupiers and 5,001 owners of live stock only, the occupiers thus showing a decrease of 765, and the owners of live stock only a decrease of 221 from 1879. The variations in the separate counties are often stated by the collecting officers to be due to the depression in agriculture. In some cases vacant farms have been returned by the owner or temporarily added to other farms, in both cases diminishing the number of occupiers, while in other instances large farms which had been given up have been subdivided.

"A special return of various sized holdings and the live stock thereon has been obtained this year, to which reference will be made in a subsequent part of this report, as showing any changes that have taken place in the average size of farms since the last return of this nature was prepared in 1875. The owners of live stock only have decreased materially of late years, having numbered more than 6,000 in 1873, and this decrease is in great measure ascribed to the stricter regulations enforced as to keeping pigs and cows in populous places, while the increased railway facilities for bringing milk from the country also tend to lessen the number of town cowkeepers.

"In the summary of the return annexed (see Table No. 1), columns are added as usual to show for Ireland and for the whole of the United Kingdom the particulars corresponding to those in the return for Great Britain; the figures for Ireland having been supplied to this department by the courtesy of the registrar general for that country. As has been mentioned in former reports, the returns in Great Britain are obtained from all occupiers of not less than a quarter of an acre of land, and also from owners of live stock who do not occupy land, while cottagers' pigs are excluded as well as pigs kept in towns; but a somewhat different plan, it appears, is followed in Ireland, where the enumerators enter the particulars themselves, after personally consulting the occupiers. In that country, all holdings however small, are included, and even garden crops are entered in the schedules: variations which it is useful to remember when the agricultural statistics of Great Britain and Ireland are compared.

"The total quantity of land returned in 1880 as under all kinds of crops, bare fallow, and grass, amounted, for Great Britain, to 32,102,000 acres. For Ireland the returns obtained by the registrar general show a total of 15,358,000 acres, and for the Isle of Man and Channel Islands the totals are respectively 97,000 acres and 30,000 acres. Thus for the whole of the United Kingdom the cultivated area was in 1880, 47,587,000 acres, exclusive of heath and mountain pasture land, and of woods and plantations.

"In making the following remarks on the returns now presented, I propose to notice first the chief points in the figures relating to Great Britain alone, and afterwards allude shortly to the comparative figures for Ireland.

"In Great Britain the area returned as under cultivation has increased by 126,000 acres since 1879, and the total increase in the ten years since 1870 is no less than 1,694,000 acres, or a greater area than the whole of Devonshire. Of this increase, about two-

thirds, or 1,187,000 acres, were in England, 220,000 acres in Wales, and 287,000 acres in Scotland. As has been remarked several times in previous reports, a large share of this increased acreage must be credited to the more correct returns of late years, when errors from the use of local acres, such as 'Scotch' or 'Lancashire' acres, and also the omission of out of the way farms, have been discovered. In the absence of a complete cadastral survey, there must always be considerable uncertainty amongst landowners and farmers as to the exact acreage of their holdings. Making liberal allowances, however, for these differences, it is certain that a considerable portion of land is annually reclaimed from mountain, moor, or bog, especially in the wilder districts of the country, and a good many instances of this are noticed by the inland revenue officers as having occurred during the past year, especially of hill land or rough common land being enclosed, which would of course bring such land into the returns. Occasionally also the acreage of particular counties may vary a little from farms on the borders being one year included in one county and next year in a different one, but any material discrepancy, either in the total acreage or in particular crops, is always carefully examined, the comparison with the figures of the past year often extending to the parish returns.

"Looking at the details of the various crops in Great Britain, I have to notice that the area under wheat in 1880 was 2,909,000 acres, or 19,000 acres more than in the previous year. The wheat area of 1879 was, however, the lowest on record since the returns were first obtained in 1867, and the present year's crop was grown on nearly 591,000 acres less than in 1870. In some counties it is stated by the collecting officers that a favourable autumn led to an increased breadth of wheat being sown, but the large number of unlet farms, and of farms where agricultural depression prevailed, appears to have caused much wheat land to be left in fallow, as will be noticed presently. In barley there is a considerable decrease since 1879, when 2,667,000 acres were sown, as compared with only 2,467,000 acres in the present year. The inferior quality and the difficulty of securing the crop last year are stated by the officers in some places as having caused this decrease, but it may be noted that the present year's acreage under barley is fully equal to the average of the last ten years.

"Oats were sown on 2,797,000 acres, or an increase of 5 per cent. over the area in 1879, and these figures have only once been reached since 1867; but the other stock feeding corn crops show a considerable falling off, beans being grown on 427,000 acres, as compared with 530,000 acres in 1870, and peas on 234,000 acres, against 317,000 in 1870. The imports of maize, which compete largely with these crops, have somewhat declined during the past year, but are still more than double those of ten years ago. Taking then all the figures as to the corn crops in Great Britain, we find their area was 8,876,000 acres, or a decrease of rather more than 1 per cent. from the previous year, and of 7 per cent. from the year 1870.

"As regards the green crops, we find an increase of 10,000 acres planted with potatoes, and the area, 551,000 acres, is nearly equal



to the figure of ten years ago. Turnips and swedes were returned as grown on 2,024,000 acres, a small increase from 1879, but man-golds show a decrease of nearly 6 per cent. from last year; cabbage, kohl-rabi, &c., of 4 per cent.; and vetches, lucerne, and other green crops, of more than 15 per cent.; the acreage this year being only 380,000, making the total area under green crops 3,477,000 acres, or 2 per cent. less than in 1879. Green crops, on the whole, have shown little change during the last ten years, but the present year's figures are less than in any year since 1868. Flax has increased somewhat from the average of the last five years, but the area, 9,000 acres, is still less than half the acreage grown ten years ago. Hops were planted on 67,000 acres—about the same area as in 1879. A return (Table No. 5) was added last year, and is continued this year, to show in greater detail than in counties the districts in which the hops are grown.

“Bare fallow in Great Britain has further increased from 721,000 acres to 812,000 acres, and has this year taken a larger area than in any year since 1870, when there were only 610,000 acres in fallow. The depression in agriculture and the number of farms unlet and temporarily farmed by their owners are stated by the collecting officers as the chief reasons of so much land being uncropped, and the foul state of the land is also noticed in some districts.

“Clover and rotation grasses have varied little in their acreage from 1879, showing 4,434,000 acres at the present time. Permanent pasture and meadow have increased by 260,000 acres since last year, and now amount to 14,427,000 acres, or nearly 45 per cent. of the cultivated area of Great Britain. It will be remembered that last year the distinction between ‘for hay’ and ‘not for hay,’ both as regards rotation grasses and permanent grass, was discontinued owing to the trouble this distinction was stated to cause the farmers, and also because these headings were sometimes misleading in the case of water meadows, and other land cut several times in the season. Some confusion has always existed between permanent and rotation grasses, especially as to land under rotation grasses for two or three years; but there is no doubt that the tendency to lay down arable land to grass has been marked for some years, although the increase of nearly  $2\frac{1}{2}$  million acres in permanent grass since 1870 may not be entirely due to the conversion of arable land and the enclosure of hill and waste land.

“Orchards in Great Britain again show a satisfactory increase, their acreage being this year returned as 180,000 acres, against 175,000 in 1879 and 165,000 in 1878. Market gardens have also increased from 41,000 acres to 44,000 acres, and the collectors report both with regard to orchards and market gardens that there is a growing demand for fruit and vegetables, especially in the neighbourhood of towns. The uncertainty of the climate for fruit growing must always, however, tend to restrict the extension of fruit plantations except in naturally favoured districts.

“A special return of the acreage of woods and plantations has been obtained this year, the last return of this nature having been made in 1872. Since that date the acreage appears to have



increased from 2,187,000 acres to 2,409,000 acres, or nearly 10 per cent. Considerable difficulties are met with in obtaining this information, as, besides the examination of the parish rate books, valuation lists, &c., special application has frequently to be made to the proprietors of woods, and there is often some doubt as to what land should be included in the return. It is believed, nevertheless, that the figures obtained this year are generally accurate.

“Turning now to the various kinds of live stock there appears to be a slight decline in agricultural horses, caused it is stated by the number of unlet farms, and also a decrease in brood mares and young horses, for which the demand has not been so great recently. Moreover, the stock of horses had increased up to last year, when the numbers were larger than in any year since 1870. The imports of horses from abroad were 26,000 in 1878, 15,000 in 1879, and only 6,600 in the first eight months of the present year. As regards horned cattle, milch cows have decreased less than 1 per cent., but other cattle show an increase of nearly 2 per cent., so that the total number of horned cattle in Great Britain is this year 5,912,000 as compared with 5,856,000 in 1879. Sheep in the country have suffered an important decline of nearly a million, chiefly owing, the collectors state, to the losses by disease, and lambs have also decreased more than half a million, partly it is stated from the weak condition of the ewes. The stock of sheep and lambs is now only 26,619,000, which appears to be a very insufficient number considering the additional permanent pastures of late years. It may be remarked that these great losses in sheep and lambs have occurred only in England and Wales, the counties of Scotland with few exceptions showing a small increase in sheep and a considerable one in lambs, while the northern border counties of England have also escaped in great measure. Pigs have further decreased by 91,000 since 1879 and by 483,000 since 1878, the competition of American bacon being stated to make pig keeping less profitable than formerly, while, as before mentioned, the sanitary regulations in populous places tend also to diminish their numbers.

“Turning now to the figures of the crops and live stock in Ireland, we find that the changes are of much the same nature as those in the returns for Great Britain. The cultivated area is slightly larger than in the two last years, being this year 15,358,000 acres as against 15,336,000 acres in 1879, and 15,345,000 acres in 1878. It is true that before 1877 the cultivated area averaged 400,000 acres more than these figures, but the apparent decline was caused by a separate heading being made in the return of 1877 for ‘barren mountain land,’ some of which had often in previous years been included under the head of ‘grass’ in consequence of having some live stock on it when the returns were collected. As regards corn crops in Ireland there is little change to notice from 1879, the increase in the acreage of oats counterbalancing the decrease in wheat and barley. There has, however, been a considerable decline in the area of corn crops since 1870, when they covered 2,173,000 acres as compared with 1,766,000 at the present time. Coming to green crops we notice a further general decline in the acreage of almost all the crops. Potatoes were planted in 821,000 acres

against 843,000 acres in 1879 and 1,044,000 acres in 1870. Turnips occupied 303,000 acres against 315,000 acres last year, and the total acreage of green crops amounts to less than a million and a quarter as compared with a million and a half ten years ago. Flax was grown on 157,000 acres or 24 per cent. more than in 1879. Rotation grasses show a small decline and permanent grass an increase—the area now amounting to 10,261,000 acres.

“As regards live stock we find a decrease in every description from 1879, but as regards horses and cattle the numbers are still fully equal to those of ten years ago. In sheep, however, the decrease of nearly half a million from last year leaves the number little over  $3\frac{1}{2}$  millions, and pigs too are less by 20 per cent., there being now only 849,000 against 1,072,000 in 1879 and 1,459,000 in 1870.

“The usual table showing the relative course of agriculture in the counties of England, arranged in two divisions of chiefly grazing and corn growing counties, has been prepared, and is here given.

“The *grazing*, or *western*, division includes twenty-one counties: Northumberland, Cumberland, Durham, Westmoreland, York (North and West Ridings), Lancaster, Chester, Derby, Stafford, Leicester, Salop, Worcester, Hereford, Monmouth, Gloucester, Wilts, Dorset, Somerset, Devon, and Cornwall.

“The *corn*, or *eastern*, division includes twenty-one counties:—York (East Riding), Lincoln, Nottingham, Rutland, Huntingdon, Warwick, Northampton, Cambridge, Norfolk, Suffolk, Bedford, Bucks, Oxford, Berks, Hants, Hertford, Essex, Middlesex, Surrey, Kent, and Sussex.

“Although the number of the counties is the same in each of these groups, the total acreage is larger in the grazing than in the corn division, in the ratio of 53 to 47 per cent. of the total acreage under crops and grass in England.

*Acreage under Crops, and Number of Live Stock, in Grazing Counties and in Corn Counties of England, and Percentages of the Totals in England in Grazing and Corn Counties respectively.*

	In Grazing Counties.		In Corn Counties.	
	Acreage and Number.	Percentage of Total for England.	Acreage and Number.	Percentage of Total for England.
Total acreage returned under all kinds of crops, bare fallow, and grass .....	13,119,942	53·3	11,476,324	46·7
Acreage under—				
Wheat .....	956,869	34·8	1,788,864	65·2
Barley .....	714,146	34·7	1,346,661	65·3
Oats .....	816,582	53·7	703,543	46·3
Rye .....	10,396	32·8	21,287	67·2
Beans .....	104,530	25·9	299,541	74·1
Peas .....	44,379	19·2	186,901	80·8
Total under above corn crops .....	2,646,902	37·8	4,346,797	62·2
Potatoes .....	190,867	58·7	134,064	41·3
Turnips and swedes .....	651,447	44·2	821,583	55·8
Mangold .....	95,799	28·7	237,810	71·3
Carrots .....	3,437	22·6	11,749	77·4
Cabbage, kohl-rabi, and rape .....	56,870	36·7	98,131	63·3
Vetches, lucerne, &c. ....	106,020	29·7	251,357	70·3
Clover and other grass under rotation .....	1,400,903	52·9	1,245,338	47·1
Total under above green crops and grass under rotation .....	2,505,343	47·2	2,800,032	52·8
Bare fallow .....	309,004	40·7	450,841	59·3
Permanent pasture .....	7,646,714	66·7	3,815,142	33·3
Flax .....	3,160	36·0	5,628	64·0
Hops .....	8,819	13·2	57,884	86·8
Orchards, &c. ....	133,613	76·3	41,587	23·7
Woods, &c. ....	748,913	52·2	686,521	47·8
Number of horses used solely for agriculture .....	368,054	48·0	398,473	52·0
Number of horses unbroken and mares for breeding ....	180,887	55·5	144,858	44·5
Number of cattle .....	2,707,069	65·1	1,450,977	34·9
"    sheep .....	8,784,899	52·2	8,043,747	47·8
"    pigs .....	807,235	47·5	890,679	52·5

*Acreage of each Description of Crop in Grazing and Corn Counties of England, and Percentage of Total Cultivated Acreage in each Division, under each Description of Crop.*

	In Grazing Counties.		In Corn Counties.	
	Acreage.	Percentage of Total Cultivated Acreage in the Division.	Acreage.	Percentage of Total Cultivated Acreage in the Division.
Acreage under—				
Corn crops .....	2,646,902	20·2	4,346,797	37·9
Green „ .....	1,104,440	8·4	1,554,694	13·5
Clover and other grass } under rotation .....	1,400,903	10·7	1,245,338	10·9
Bare fallow .....	309,004	2·4	450,841	3·9
Permanent pasture .....	7,646,714	58·3	3,815,142	33·2

“On comparing the figures with those of the last year or two, the variations in the distribution of the crops between the two great divisions are very slight except in a few instances. Thus in the corn crops the percentage in the grazing counties is now 37·8 against 37·6 last year and 37·9 in 1878, and there are a few small variations in the green crops, but the total percentage of green crops in the grazing counties varies only as much as from 47·7 in 1879 to 47·2 this year, the corresponding percentage of green crops in the corn counties being 52·8 this year, against 52·3 in 1879 and 52·2 in 1878. In bare fallow the increase has been larger in the corn than in the grazing counties, the percentage in the corn counties being now 59·3 against 57·1 last year and 55·2 in 1878, and the percentage of bare fallow in the grazing counties is now only 40·7. The increased acreage of flax is chiefly in the corn counties, and the percentage there is this year 64·0 of the total area as compared with 60·9 last year. Woods show a percentage of 52·2 in the grazing counties against 51·0 in the last return in 1872. As regards live stock, there is again little difference; but the proportionate number of sheep in the grazing counties is now 52·2, as compared with 53·0 in 1879 and in the corn counties 47·8 against 47·0.

“As before mentioned, a special return of various sized holdings and the live stock thereon was this year obtained, and the particulars for each county of Great Britain will be found in Tables Nos. 6 to 22.

“On comparing the principal results with the figures of 1875, when the last return of this kind was obtained, the proportionate acreage of the large and small holdings seems to have undergone little change. Thus for Great Britain the area held in occupations of 50 acres and under is still 15 per cent. of the total; that between 50 and 100 acres also 15 per cent.; between 100 and 300, 42 per cent.; from 300 to 500, 16 per cent.; from 500 to 1,000, 10 per cent.; and in farms over 1,000 acres 2 per cent.

“In England alone a tendency to larger occupations may be noticed, the small farms of 50 acres and under being now 14 instead



of 15 per cent. of the whole acreage, and the moderate sized ones between 50 and 300 acres, 54 per cent. against 56 per cent. in 1875, while farms over 300 acres amount to 32 per cent., or nearly a third of the cultivated area as compared with 29 per cent. in 1875.

"In Scotland, however, the tendency is rather to an increase in occupations between 50 and 300 acres, which are now 59 per cent. against 58 per cent. in 1875, and the moderate sized farms in Wales have also somewhat increased, so that, as before stated, the proportionate acreage for the whole of Great Britain is almost the same.

"Turning to the number of live stock, there is again little variation to notice. Medium sized holdings (50 to 300 acres) still have 58 per cent. of the cattle and 50 per cent. of the sheep of Great Britain, and the number of sheep in the small holdings is now 17 per cent. as compared with 18 per cent. in 1875; cattle on the same holdings being still 24 per cent., or nearly a quarter of the whole number.

"It may be remarked, as was mentioned in Mr. Valpy's report in 1875, that the large number of sheep compared to acreage on the small holdings in Wales and Scotland is owing to these occupiers having large tracts of rough pasture not included in the agricultural returns in addition to their small acreage of cultivated or enclosed land.

"With a view to increase the usefulness of the return, some comparative tables were last year added, and are now continued, embracing and expanding the information formerly given for a series of years in two short tables immediately appended to the report, and giving in addition certain details as to each county for a series of years. As was explained in my report last year, the first two of these tables (Nos. 23 and 24) show for each of the last ten years the acreage of land under different crops and number of live stock in each division of the United Kingdom, with a comparison of land under crops with permanent pasture, while the subsequent tables give details and percentages of cultivation for the same decennial period in the different counties of Great Britain which are arranged not geographically but as 'corn,' 'pastoral,' or 'mixed' counties, according to the percentage of their corn crops to permanent pasture. Other tables were also added, comprising and continuing the information as to the prices of corn and other articles of agricultural produce, imports of such articles by quantities and values, and other matters contained in the Returns Nos. 273 and 401, Sess. 1878, and No. 210, Sess. 1879. These two sets of tables form Nos. 23 to 58, inclusive, of the accompanying return.

"The returns of the crops and live stock in British possessions and foreign countries ceased to be included with this report several years ago, the principal figures being annually published in the statistical abstracts relating to the colonies and foreign countries; but with a view of quoting briefly in this report the principal results in the Australasian colonies and in the United States, special application has again been made to the heads of the statistical departments in Australasia, and the valuable monthly reports on the condition of the crops and live stock prepared by the department

of agriculture at Washington have been consulted with reference to agriculture in America.

"The returns from Queensland have not yet been received, but taking last year's figures for that colony, it appears from the various colonial accounts that  $2\frac{3}{4}$  million acres of land in Australasia were under wheat in the last harvest, being two and a half times the area under wheat there ten years ago, and within 300,000 acres of the wheat acreage of the United Kingdom. The produce, moreover, which last year was only 10 bushels per acre, was this year more than 13 bushels, or about the average produce in the United States, the largest wheat growing colony (South Australia) yielding 10 bushels to the acre, Victoria 13 bushels, and New Zealand as much as 28 bushels. Barley is not yet an important crop in Australia, but its acreage was this year 136,000, against 80,000 in 1879, Victoria and New Zealand having both doubled their area under barley, and the produce averaged 25 bushels per acre. Oats were grown on 565,000 acres, and yielded about 31 bushels per acre, the produce of New Zealand averaging nearly 40 bushels an acre. Maize is grown almost entirely in New South Wales and Queensland. The area under that crop in the former colony was 135,000 acres in the present year, and the produce 35 bushels to the acre, or nearly 6 bushels more than in the United States. Potatoes occupied 103,000 acres, and the produce was 418,000 tons, or more than four tons to the acre, the average yield in New Zealand being between five and six tons. There is little change in the acreage under vineyards in Australia of late years, 13,000 acres being this year under vineyards, from which 1,800,000 gallons of wine were made. About 17,000 gallons of wine were imported into the United Kingdom from Australia in 1879, and New Zealand and Tasmania also consumed some of the surplus produce of the wine-making colonies. As regards live stock in Australasia, in the absence of this year's returns for two important colonies, Queensland and New Zealand, we are unable to make a very close comparison with past years, but in Victoria we find a small falling off in cattle and a larger one, nearly three quarters of a million, in sheep, the number of sheep in Victoria being now less than in any year since 1864. The decrease in the number and acreage of squatting runs of late years, owing to more land being cultivated, is no doubt the chief cause of this decline. In New South Wales on the other hand there is an increase from last year's figures in all descriptions of stock and especially in sheep, of which there are now 29 millions or double the number in 1870. The approximate number of live stock in the whole of Australasia for the present year was of horses 1,050,000, horned cattle 7,510,000, sheep 65,400,000, and pigs 810,000.

"The absence of yearly agricultural returns in the dominion of Canada is much to be regretted, as the decennial statistics, which are collected with the census and were last taken in 1870, give no information as to the present production of wheat in the newly settled districts of Manitoba.

"With respect to the United States the latest returns state the acreage under wheat to be about 9 per cent. in excess of last year, which would represent this year's area as rather more than  $35\frac{1}{2}$  mil-

lion acres. Maize, which covered 53,085,000 acres last year, shows an increase of less than 1 per cent. Barley, 1,733,000 acres last year, has fallen off 10 per cent. Rye, 1,551,000 acres in 1879, has also fallen off. Oats, 12,683,000 acres last year, cover an increased area of about 2 per cent.

“The returns of the yield of these crops have not yet been received, but the reports received by the Department of Agriculture at Washington state the condition of both the wheat and maize crops to be little less favourable than last year. Taking into consideration the increased acreage it may be anticipated that the yield of wheat, which in 1879 was 448,755,000 bushels, will not be less this year than 500,000,000 bushels, and maize, which yielded 1,544,899,000 bushels last year, may somewhat exceed that quantity. It is evident therefore that the quantity of breadstuffs available for export to Europe will be fully equal to last year, when (in the twelve months ended 30th June, 1880) 153 million bushels of wheat, 6 million barrels of flour, and 98 million bushels of maize were exported from the United States. From the reports of live stock in the United States estimated on the 1st of January last there appears to be little change from the figures of 1878-79, except as regards sheep, in which there is an increase of 6 per cent. Pigs on the other hand are less by 4 per cent. According to these estimates the numbers should now be, horses 11 millions, mules  $1\frac{3}{4}$  million, cattle 33 millions, sheep  $40\frac{1}{2}$  millions, and pigs  $33\frac{1}{2}$  millions.

## APPENDIX.

TABLE A.—*Total Area and Acreage under each kind of Crop, Bare Fallow, and Grass; and 1879, in each Division of Great Britain, with similar Particulars*

	England.		Wales.		Scotland.	
	1880.	1879.	1880.	1879.	1880.	1879.
TOTAL AREA AND ACREAGE UNDER CORN CROPS,						
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Total area .....	32,597,	32,597,	4,722,	4,722,	19,496,	19,496,
„ acreage under crops, bare fallow, and grass ...	24,596,	24,504,	2,768,	2,769,	4,738,	4,713,
<b>Corn Crops—</b>						
Wheat.....	2,746,	2,719,	90,	95,	74,	77,
Barley or bere .....	2,061,	2,236,	143,	152,	264,	279,
Oats .....	1,520,	1,425,	240,	227,	1,037,	1,005,
Rye .....	32,	40,	2,	1,	7,	8,
Beans .....	404,	420,	3,	3,	20,	22,
Peas .....	231,	274,	2,	3,	1,	1,
Total of corn crops .....	6,994,	7,114,	480,	481,	1,403,	1,392,
<b>Green Crops—</b>						
Potatoes .....	325,	324,	39,	43,	187,	175,
Turnips and swedes.....	1,473,	1,458,	65,	67,	486,	492,
Mangold.....	334,	353,	8,	8,	2,	2,
Carrots .....	15,	14,	1,	—	1,	1,
Cabbage, kohl-rabi, and rape.....	155,	162,	1,	1,	5,	5,
Vetches and other green crops, except clover or } grass .....	357,	426,	7,	7,	16,	15,
Total of green crops.....	2,659,	2,737,	121,	126,	697,	690,
Clover, sanfoin, and grasses under rotation .....	2,646,	2,675,	332,	347,	1,456,	1,451,
Permanent pasture or grass not broken up in rota- } tion (exclusive of heath or mountain land)..... }	11,462,	11,234,	1,806,	1,774,	1,159,	1,159,
Flax.....	9,	7,	—	—	—	—
Hops .....	67,	68,	—	—	—	—
Bare fallow or uncropped arable land .....	760,	671,	31,	29,	22,	21,
NUMBER OF LIVE STOCK, AS RETURNED UPON						
Horses (including ponies), as returned by occupiers of land—						
Used solely for purpose of agriculture, &c. ....	767,	770,	73,	73,	141,	142,
Unbroken horses and mares kept solely for breeding	326,	331,	62,	63,	53,	54,
Total of horses .....	1,093,	1,101,	135,	136,	194,	196,
Cattle—						
Cows and heifers in milk or in calf .....	1,593,	1,605,	261,	262,	387,	389,
Other cattle—						
2 years of age and above.....	1,076,	1,033,	126,	112,	259,	260,
Under 2 years of age .....	1,489,	1,491,	267,	270,	453,	435,
Total of cattle .....	4,158,	4,129,	654,	644,	1,099,	1,084,
Sheep—						
1 year old and above .....	10,630,	11,521,	1,905,	2,012,	4,651,	4,639,
Under 1 year old .....	6,199,	6,925,	813,	861,	2,421,	2,199,
Total of sheep .....	16,829,	18,446,	2,718,	2,873,	7,072,	6,838,
Pigs .....	1,698,	1,771,	182,	193,	121,	128,

\* From Returns prepared by the Registrar-General for Ireland, and laid before Parliament.



## APPENDIX.

and Number of Horses, Cattle, Sheep, and Pigs, as returned upon the 4th June, 1880, for Ireland,\* and with Total for United Kingdom. [000's omitted.]

Great Britain.		Ireland.		United Kingdom, including Isle of Man and Channel Islands.	
1880.	1879.	1880.	1879.	1880.	1879.
GREEN CROPS, BARE FALLOW, GRASS, &c.					
Acres. 56,815, 32,102,	Acres. 56,815, 31,976,	Acres. 20,820, 15,358,	Acres. 20,820, 15,336,	Acres. 77,829, 47,587,	Acres. 77,829, 47,437,
2,909, 2,467, 2,797, 41, 427, 234,	2,890, 2,667, 2,657, 49, 444, 278,	149, 219, 1,382, 7, 10, 1,	158, 255, 1,330, 9, 9, 1,	3,066, 2,695, 4,192, 48, 436, 235,	3,056, 2,932, 3,998, 58, 454, 279,
8,875,	8,985,	1,768,	1,762,	10,672,	10,777,
551, 2,024, 343, 17, 162, 380,	541, 2,017, 364, 16, 168, 448,	821, 303, † 42, † 4, 42, 36,	843, 315, † 51, † 5, 40, 41,	1,381, 2,336, 385, 21, 204, 418,	1,393, 2,342, 415, 21, 209, 492,
3,477,	3,554,	1,248,	1,295,	4,745,	4,872,
4,434, 14,427, 9, 67, 813,	4,473, 14,167, 7, 68, 721,	1,910, 10,261, 158, —, 15,	1,937, 10,198, 128, —, 16,	6,389, 24,717, 167, 67, 829,	6,451, 24,396, 135, 68, 738,
THE 4TH JUNE, 1880 AND 1879.					
980, 441,	985, 448,	} 499,	513,	1,930,	1,955,
1,421,	1,433,	499,	513,	1,930,	1,955,
2,242, 1,461, 2,210,	2,255, 1,405, 2,196,	1,397, 864, 1,660,	1,465, 841, 1,762,	3,655, 2,330, 3,886,	3,736, 2,250, 3,975,
5,913,	5,856,	3,921,	4,068,	9,871,	9,961,
17,186, 9,433,	18,172, 9,985,	2,305, 1,256,	2,572, 1,446,	19,523, 10,717,	20,780, 11,458,
26,619,	28,157,	3,561,	4,018,	30,240,	32,238,
2,001,	2,092,	849,	1,072,	2,863,	3,178,
<div> <div>Total area</div> <div>„ acreage under crops, bare fallow, and grass</div> <div>Corn Crops—</div> <div>Wheat</div> <div>Barley or bere</div> <div>Oats</div> <div>Rye</div> <div>Beans</div> <div>Peas</div> <div>Total of corn crops</div> <div>Green Crops—</div> <div>Potatoes</div> <div>Turnips and swedes</div> <div>Mangold</div> <div>Carrots</div> <div>Cabbage, kohl-rabi, and rape</div> <div>{ Vetches and other green crops, except clover or grass</div> <div>Total of green crops</div> <div>Clover, sanfoin, and grasses under rotation</div> <div>{ Permanent pasture or grass not broken up in rotation (exclusive of heath or mountain land)</div> <div>Flax</div> <div>Hops</div> <div>Bare fallow or uncropped arable land</div> <div>Horses (including ponies), as returned by occupiers of land—</div> <div>Used solely for purpose of agriculture, &amp;c.</div> <div>Unbroken horses and mares kept solely for breeding</div> <div>Total of horses</div> <div>Cattle—</div> <div>Cows and heifers in milk or in calf</div> <div>Other cattle—</div> <div>2 years of age and above</div> <div>Under 2 years of age</div> <div>Total of cattle</div> <div>Sheep—</div> <div>1 year old and above</div> <div>Under 1 year old</div> <div>Total of sheep</div> <div>Pigs</div> </div>					

† Including beet root.

‡ Including parsnips.

TABLE B.—Percentage of Total Cultivated Acreage under Various Kinds of Crops, and Number of each Kind of Live Stock to every 100 Acres

	England.		Wales.		Scotland.	
	1880.	1879.	1880.	1879.	1880.	1879.
PERCENTAGE OF TOTAL CULTIVATED ACREAGE						
Corn crops (including beans and peas) .....	28·4	29·0	17·3	17·5	29·6	29·5
Green crops .....	10·8	11·2	4·3	4·6	14·7	14·7
Bare fallow .....	3·1	2·7	1·1	1·0	0·5	0·4
Grass—						
Clover, &c., under rotation .....	10·8	10·9	12·0	12·5	30·7	30·8
Permanent pasture .....	46·6	45·9	65·3	64·4	24·5	24·6
Other crops .....	0·3	0·3	0·0	0·0	0·0	0·0
Total .....	100·0	100·0	100·0	100·0	100·0	100·0
PERCENTAGE OF TOTAL ACREAGE OF CORN CROPS						
Wheat .....	39·3	38·2	18·8	19·7	5·3	5·5
Barley or bere .....	29·5	31·4	29·8	31·7	18·8	20·0
Oats .....	21·7	20·0	50·1	47·1	73·9	72·2
Rye .....	0·4	0·6	0·4	0·3	0·5	0·6
Beans .....	5·8	5·9	0·5	0·6	1·4	1·6
Peas .....	3·3	3·9	0·4	0·6	0·1	0·1
Total .....	100·0	100·0	100·0	100·0	100·0	100·0
PERCENTAGE OF TOTAL ACREAGE OF GREEN CROPS						
Potatoes .....	12·2	11·8	32·4	33·6	26·8	25·3
Turnips and swedes .....	55·4	53·3	54·3	53·0	69·7	71·2
Mangold .....	12·6	12·9	6·4	6·6	0·3	0·4
Carrots .....	0·6	0·5	0·4	0·4	0·2	0·2
Cabbages, kohl-rabi, and rape .....	5·8	5·9	0·9	1·0	0·8	0·7
Vetches, lucerne, and any other green crop, except clover or grass .....	13·4	15·6	5·6	5·4	2·2	2·2
Total .....	100·0	100·0	100·0	100·0	100·0	100·0
NUMBER OF EACH KIND OF LIVE STOCK TO EVERY						
Horses .....	4·4	4·5	4·9	4·9	4·1	4·2
Cattle .....	16·6	16·9	23·7	23·3	23·2	23·0
Sheep .....	68·4	75·3	98·2	104·2	149·3	145·1
Pigs .....	6·9	7·2	6·6	7·0	2·6	2·7

*of the Acreage of Corn and Green Crops under the several Descriptions of such Crops, under Cultivation, in each of the Years 1880 and 1879.*

Great Britain.		Ireland.		United Kingdom, including Isle of Man and Channel Islands.	
1880.	1879.	1880.	1879.	1880.	1879.
UNDER VARIOUS KINDS OF CROPS IN EACH YEAR.					
27·7	28·1	11·5	11·5	22·4	22·7
10·8	11·1	8·1	8·5	10·0	10·3
2·5	2·3	0·1	0·1	1·7	1·6
13·8	14·0	12·5	12·6	13·4	13·6
45·0	44·3	66·8	66·5	52·0	51·4
0·2	0·2	1·0	0·8	0·5	0·4
100·0	100·0	100·0	100·0	100·0	100·0
{ Corn crops (including beans and peas) Green crops Bare fallow Grass— Clover, &c., under rotation Permanent pasture Other crops					
Total					

UNDER EACH KIND OF CORN CROP IN EACH YEAR.

32·8	32·2	8·4	8·9	28·7	28·4
27·8	29·7	12·4	14·5	25·3	27·2
31·5	29·6	78·2	75·5	39·3	37·1
0·5	0·5	0·4	0·5	0·4	0·5
4·8	4·9	0·6	0·5	4·1	4·2
2·6	3·1	0·0	0·1	2·2	2·6
100·0	100·0	100·0	100·0	100·0	100·0
Wheat Barley or bere Oats Rye Beans Peas					
Total					

UNDER EACH KIND OF GREEN CROP IN EACH YEAR.

15·9	15·2	65·8	65·1	29·1	28·6
58·2	56·8	24·3	24·3	49·2	48·1
9·9	10·2	3·3	4·0	8·1	8·5
0·5	0·4	0·3	0·3	0·5	0·4
4·6	4·8	3·4	3·1	4·3	4·3
10·9	12·6	2·9	3·2	8·8	10·1
100·0	100·0	100·0	100·0	100·0	100·0
Potatoes Turnips and swedes Mangold Carrots Cabbages, kohl-rabi, and rape Vetches, lucerne, and any other green crop, except clover or grass					
Total					

100 ACRES UNDER CROPS, FALLOW AND GRASS.

4·4	4·5	3·3	3·3	4·1	4·1
18·4	18·3	25·5	26·5	20·7	21·0
82·9	88·1	23·2	26·1	63·5	68·0
6·2	6·5	5·5	7·0	6·0	6·7
Horses Cattle Sheep Pigs					

TABLE C.—Statement of the Number of Agricultural Holdings of various sizes, and of the Acreage of each Class of Holdings; and of the Live Stock thereon, in England, Wales, Scotland, and Great Britain, in each of the years 1880 and 1875.

Classification of Holdings.	England.		Wales.		Scotland.		Great Britain.	
	1880.	1875.	1880.	1875.	1880.	1875.	1880.	1875.
NUMBER OF AGRICULTURAL HOLDINGS OF EACH CLASS.								
50 acres and under ...	295,313	293,469	40,836	40,161	55,280	56,311	391,429	389,941
From 50 to 100.....	44,602	44,842	9,767	9,656	9,726	9,878	64,095	64,376
„ 100 „ 300.....	58,677	58,450	7,696	7,316	12,348	11,823	78,721	77,589
„ 300 „ 500.....	11,617	11,245	454	433	2,007	1,967	14,078	13,645
„ 500 „ 1,000.....	4,095	3,871	75	84	661	691	4,831	4,646
Above 1,000 .....	500	463	6	10	79	126	585	599
Total .....	414,804	412,340	58,834	57,660	80,101	80,796	553,739	550,796
ACREAGE OF HOLDINGS OF EACH CLASS.								
50 acres and under ...	3,528,840	3,550,405	647,587	631,941	653,295	666,356	4,829,722	4,848,702
From 50 to 100.....	3,233,053	3,259,110	707,743	698,879	721,844	697,620	4,662,640	4,655,609
„ 100 „ 300.....	10,197,913	10,042,162	1,202,098	1,141,456	2,082,914	1,980,081	13,482,925	13,163,699
„ 300 „ 500.....	4,359,794	4,202,402	155,993	157,725	750,295	729,885	5,266,082	5,090,012
„ 500 „ 1,000.....	2,654,360	2,513,903	47,378	54,207	418,650	427,478	3,120,388	2,995,588
Above 1,000 .....	637,311	571,994	7,176	12,941	114,298	109,675	758,785	694,610
Total .....	24,611,271	24,139,976	2,767,975	2,697,149	4,741,296	4,611,095	32,120,542	31,448,220
NUMBER OF HORSES USED FOR AGRICULTURE ON EACH CLASS OF HOLDINGS.								
50 acres and under ...	141,252	—*	19,445	—*	34,681	—*	195,378	—*
From 50 to 100.....	113,433	—*	20,861	—*	25,032	—*	159,326	—*
„ 100 „ 300.....	314,252	—*	28,746	—*	56,686	—*	399,684	—*
„ 300 „ 500.....	119,655	—*	2,915	—*	16,657	—*	139,227	—*
„ 500 „ 1,000.....	65,651	—*	585	—*	7,106	—*	73,342	—*
Above 1,000 .....	12,243	—*	47	—*	1,033	—*	13,323	—*
Total .....	766,486	—*	72,599	—*	141,195	—*	980,280	—*
NUMBER OF CATTLE ON EACH CLASS OF HOLDINGS.								
50 acres and under ...	924,407	963,651	192,355	196,192	281,035	307,967	1,397,797	1,467,810
From 50 to 100.....	659,165	699,548	172,945	175,915	196,125	206,906	1,028,235	1,082,369
„ 100 „ 300.....	1,677,622	1,695,295	254,406	244,140	436,561	438,145	2,368,589	2,377,580
„ 300 „ 500.....	573,135	562,836	27,927	27,581	116,489	116,920	717,551	707,337
„ 500 „ 1,000.....	259,669	244,023	6,077	6,419	47,281	52,008	313,027	302,450
Above 1,000 .....	46,957	40,050	562	757	9,297	10,595	56,816	51,402
Total .....	4,140,955	4,205,403	654,272	651,004	1,086,788	1,132,541	5,882,015	5,988,948
NUMBER OF SHEEP AND LAMBS ON EACH CLASS OF HOLDINGS.								
50 acres and under ...	1,497,760	1,808,413	705,959	831,618	2,368,186	2,583,626	4,571,905	5,223,657
From 50 to 100.....	1,754,255	2,126,590	749,807	807,382	1,230,934	1,098,738	3,734,996	4,032,710
„ 100 „ 300.....	6,432,090	7,592,104	1,027,076	1,067,426	1,877,501	1,708,614	9,336,667	10,368,144
„ 300 „ 500.....	3,694,344	4,038,957	139,790	167,150	746,587	749,122	4,580,721	4,955,229
„ 500 „ 1,000.....	2,735,584	2,865,219	57,246	63,419	584,014	608,716	3,376,844	3,537,354
Above 1,000 .....	704,752	656,504	7,596	13,691	139,667	244,387	852,015	914,582
Total .....	16,818,785	19,087,787	2,687,474	2,950,686	6,946,889	6,993,203	26,453,148	29,031,676

\* Unbroken horses and mares kept for breeding were included with the horses used for agriculture in the returns for 1875, and therefore no comparison can be made between the numbers for the years 1880 and 1875.



TABLE D.—*Statement showing the Percentage that the Number and Acreage of each Class of Holdings, and the Live Stock thereon, is of the Total Number and Acreage of Holdings, and of Live Stock thereon, in England, Wales, Scotland, and Great Britain, for each of the years 1880 and 1875.*

Classification of Holdings.	England.		Wales.		Scotland.		Great Britain.	
	1880.	1875.	1880.	1875.	1880.	1875.	1880.	1875.
PER-CENTAGE OF THE TOTAL NUMBER OF HOLDINGS.								
50 acres and under....	71	71	69	70	69	70	71	71
From 50 to 100....	11	11	17	17	12	12	12	12
„ 100 „ 300....	14	14	13	12	15	15	14	14
„ 300 „ 500....	3	3	1	1	3	2	2	2
„ 500 „ 1,000....	1	1	—	—	1	1	1	1
Above 1,000 .....	—	—	—	—	—	—	—	—
Total .....	100	100	100	100	100	100	100	100
PER-CENTAGE OF TOTAL ACREAGE.								
50 acres and under....	14	15	23	23	14	14	15	15
From 50 to 100....	13	14	26	26	15	15	15	15
„ 100 „ 300....	41	42	43	42	44	43	42	42
„ 300 „ 500....	18	17	6	6	16	16	16	16
„ 500 „ 1,000....	11	10	2	2	9	10	10	10
Above 1,000 .....	3	2	—	1	2	2	2	2
Total .....	100	100	100	100	100	100	100	100
PER-CENTAGE OF HORSES ON EACH CLASS OF HOLDINGS.								
50 acres and under....	18	—*	27	—*	24	—*	20	—*
From 50 to 100....	15	—*	29	—*	18	—*	16	—*
„ 100 „ 300....	41	—*	39	—*	40	—*	41	—*
„ 300 „ 500....	16	—*	4	—*	12	—*	14	—*
„ 500 „ 1,000....	8	—*	1	—*	5	—*	8	—*
Above 1,000 .....	2	—*	—	—*	1	—*	1	—*
Total .....	100	—*	100	—*	100	—*	100	—*
PER-CENTAGE OF CATTLE ON EACH CLASS OF HOLDINGS.								
50 acres and under....	22	23	29	30	26	27	24	24
From 50 to 100....	16	17	27	27	18	18	18	18
„ 100 „ 300....	41	40	39	38	40	39	40	40
„ 300 „ 500....	14	13	4	4	11	10	12	12
„ 500 „ 1,000....	6	6	1	1	4	5	5	5
Above 1,000 .....	1	1	—	—	1	1	1	1
Total .....	100	100	100	100	100	100	100	100
PER-CENTAGE OF SHEEP AND LAMBS ON EACH CLASS OF HOLDINGS.								
50 acres and under....	9	9	27	28	34	37	17	18
From 50 to 100....	11	11	28	27	18	16	14	14
„ 100 „ 300....	38	40	38	36	27	24	36	36
„ 300 „ 500....	22	21	5	6	11	11	17	17
„ 500 „ 1,000....	16	15	2	2	8	9	13	12
Above 1,000 .....	4	4	—	1	2	3	3	3
Total .....	100	100	100	100	100	100	100	100

\* See note p. 658.

TABLE E.—Summary of Total Acreage under each Principal Crop, and of the Number

		1871.	1872.	1873.	1874.	1875.
<i>Principal Crops.</i>		Acres.	Acres.	Acres.	Acres.	Acres.
Wheat....	England .....	3,312,550	3,336,888	3,252,802	3,391,440	3,128,547
	Wales .....	126,334	126,367	116,852	117,869	111,797
	Scotland .....	133,010	135,702	120,726	120,991	102,137
	Great Britain....	3,571,894	3,598,957	3,490,380	3,630,300	3,342,481
Barley or Bere	England .....	1,964,210	1,896,403	1,926,183	1,889,722	2,090,423
	Wales .....	169,751	168,014	163,613	152,425	154,444
	Scotland .....	251,822	251,915	246,117	245,840	264,834
	Great Britain....	2,385,783	2,316,332	2,335,913	2,287,987	2,509,701
Oats .....	England .....	1,454,144	1,442,075	1,419,128	1,356,739	1,421,951
	Wales .....	253,672	256,074	244,893	235,621	237,170
	Scotland .....	1,007,891	1,007,688	1,012,206	1,004,024	1,004,888
	Great Britain....	2,715,707	2,705,837	2,676,227	2,596,384	2,664,009
Potatoes	England .....	391,531	339,056	309,419	314,571	320,477
	Wales .....	51,853	48,417	44,936	45,379	44,505
	Scotland .....	184,307	176,615	160,327	160,480	157,671
	Great Britain....	627,691	564,088	514,682	520,430	522,653
Turnips and Swedes	England .....	1,592,933	1,512,496	1,540,307	1,560,857	1,569,049
	Wales .....	69,833	69,185	70,821	70,843	70,326
	Scotland .....	500,978	501,826	510,780	501,636	503,323
	Great Britain....	2,163,744	2,083,507	2,121,908	2,133,336	2,142,698
Clover, &c., under Rotation	England .....	2,694,370	2,822,392	2,678,311	2,618,655	2,608,106
	Wales .....	375,086	370,850	360,555	365,078	360,596
	Scotland .....	1,299,992	1,320,209	1,327,952	1,357,009	1,385,369
	Great Britain....	4,369,448	4,513,451	4,366,818	4,340,742	4,354,071
<i>Live Stock.</i>		No.	No.	No.	No.	No.
Cattle ....	England .....	3,671,064	3,901,663	4,173,635	4,305,440	4,218,470
	Wales .....	596,588	602,738	642,857	665,105	651,274
	Scotland .....	1,070,107	1,120,593	1,148,057	1,154,846	1,143,080
	Great Britain....	5,337,759	5,624,994	5,964,549	6,125,491	6,012,824
Sheep ....	England .....	17,530,407	17,912,904	19,169,851	19,859,758	19,114,634
	Wales .....	2,706,415	2,867,144	2,966,862	3,064,696	2,951,810
	Scotland .....	6,882,747	7,141,459	7,290,922	7,389,487	7,100,994
	Great Britain....	27,119,569	27,921,507	29,427,635	30,313,941	29,167,438
Pigs* ....	England .....	2,078,504	2,347,512	2,141,417	2,058,781	1,875,357
	Wales .....	225,456	238,317	211,174	213,754	203,348
	Scotland .....	195,642	185,920	147,668	150,297	151,213
	Great Britain....	2,499,602	2,771,749	2,500,259	2,422,832	2,229,918

\* Exclusive of those kept in towns and by

of Live Stock returned in Great Britain, in each Year from 1871 to 1880 inclusive.

1876.	1877.	1878.	1879.	1880.		
Acres.	Acres.	Acres.	Acres.	Acres.	<i>Principal Crops.</i>	
2,823,342	2,987,129	3,041,241	2,718,992	2,745,733	England .....	} Wheat
94,423	100,226	101,813	94,639	89,729	Wales .....	
78,192	81,185	75,363	76,613	73,976	Scotland .....	
2,995,957	3,168,540	3,218,417	2,890,244	2,909,438	Great Britain	
2,109,265	2,000,531	2,062,498	2,236,101	2,060,807	England .....	} Barley or Bere
153,647	147,212	148,116	152,491	142,514	Wales .....	
270,197	269,845	259,038	278,584	264,120	Scotland .....	
2,533,109	2,417,588	2,469,652	2,667,176	2,467,441	Great Britain	
1,534,249	1,489,999	1,430,376	1,425,126	1,520,125	England .....	} Oats
242,417	239,298	234,986	226,967	239,526	Wales .....	
1,021,764	1,024,882	1,033,545	1,004,535	1,037,254	Scotland .....	
2,798,430	2,754,179	2,698,907	2,656,628	2,796,905	Great Britain	
305,429	303,964	301,852	323,992	324,931	England .....	} Potatoes
42,581	42,942	40,816	42,609	38,940	Wales .....	
154,709	165,565	165,763	174,743	187,061	Scotland .....	
502,719	512,471	508,431	541,344	550,932	Great Britain	
1,561,116	1,495,885	1,466,973	1,457,762	1,473,030	England .....	} Turnips and Swedes
72,049	70,813	67,531	67,349	65,190	Wales .....	
512,408	506,757	497,356	491,964	485,987	Scotland .....	
2,145,573	2,073,455	2,031,860	2,017,075	2,024,207	Great Britain	
2,787,103	2,737,387	2,785,097	2,674,949	2,646,241	England .....	} Clover, &c., under Rotation
360,159	351,797	356,486	347,473	332,353	Wales .....	
1,393,011	1,405,032	1,431,524	1,450,951	1,455,745	Scotland .....	
4,540,273	4,494,216	4,573,107	4,473,373	4,434,339	Great Britain	
No.	No.	No.	No.	No.	<i>Live Stock.</i>	
4,076,410	3,979,650	4,034,552	4,128,940	4,158,046	England .....	} Cattle
636,644	616,209	608,189	643,815	654,714	Wales .....	
1,131,087	1,102,074	1,095,387	1,083,601	1,099,286	Scotland .....	
5,844,141	5,697,933	5,738,128	5,856,356	5,912,046	Great Britain	
18,320,091	18,330,377	18,444,004	18,445,522	16,828,646	England .....	} Sheep
2,873,141	2,862,013	2,925,806	2,873,460	2,718,316	Wales .....	
6,989,719	6,968,774	7,036,396	6,838,098	7,072,088	Scotland .....	
28,182,951	28,161,164	28,406,206	28,157,080	26,619,050	Great Britain	
1,924,033	2,114,751	2,124,722	1,771,081	1,697,914	England .....	} Pigs
215,488	230,720	218,337	192,757	182,003	Wales .....	
154,099	153,257	140,189	127,721	120,925	Scotland .....	
2,293,620	2,498,728	2,483,248	2,091,559	2,000,842	Great Britain	

cottagers with less than a quarter of an acre of land.

TABLE F.—*Total Acreage under Crops, Bare Fallow, and Grass ; and Acreage under Corn Land), in England, Wales, and Scotland*

	1871.	1872.	1873.	1874.	1875.
Total Acreage under—					
Crops, Bare Fallow, and Grass—	Acres.	Acres.	Acres.	Acres.	Acres.
England .....	23,717,660	23,830,197	23,893,558	24,008,368	24,112,309
Wales .....	2,604,817	2,635,642	2,647,080	2,678,730	2,696,143
Scotland .....	4,516,090	4,538,334	4,561,982	4,579,821	4,607,898
Total .....	30,838,567	31,004,173	31,102,620	31,266,919	31,416,350
Corn Crops—					
England .....	7,683,692	7,576,698	7,501,713	7,505,076	7,528,543
Wales .....	560,700	561,916	536,786	516,001	512,178
Scotland .....	1,430,869	1,434,937	1,420,429	1,410,413	1,410,929
Total .....	9,675,261	9,573,551	9,458,928	9,431,490	9,451,650
Green Crops—					
England .....	2,897,545	2,778,925	2,749,318	2,764,182	2,848,473
Wales .....	136,541	136,065	133,232	131,956	131,085
Scotland .....	704,094	701,393	693,936	685,132	684,549
Total .....	3,738,180	3,616,383	3,576,486	3,581,270	3,664,107
Clover, &c.—					
England .....	2,694,370	2,822,392	2,678,311	2,618,655	2,608,106
Wales .....	375,086	370,850	360,555	365,078	360,596
Scotland .....	1,299,992	1,320,209	1,327,952	1,357,009	1,385,369
Total .....	4,369,448	4,513,451	4,366,818	4,340,742	4,354,071
Total Acreage of—					
Arable Land—					
England .....	13,835,827	13,839,369	13,655,744	13,570,219	13,576,026
Wales .....	1,110,352	1,103,758	1,065,495	1,045,188	1,029,830
Scotland .....	3,456,946	3,485,440	3,465,452	3,473,500	3,497,873
Total .....	18,403,125	18,428,567	18,186,691	18,088,907	18,103,729
Permanent Pasture—					
England .....	9,881,833	9,990,828	10,237,814	10,438,149	10,536,283
Wales .....	1,494,465	1,531,884	1,581,585	1,633,542	1,666,313
Scotland .....	1,059,144	1,052,894	1,096,530	1,106,321	1,110,025
Total .....	12,435,442	12,575,606	12,915,929	13,178,012	13,312,621



*Crops, Green Crops, Clover, &c., and Permanent Pasture (exclusive of Heath and Mountain in each Year from 1871 to 1880 inclusive.*

1876.	1877.	1878.	1879.	1880.	
Acres.	Acres.	Acres.	Acres.	Acres.	Total Acreage under—
24,201,622	24,312,033	24,417,815	24,503,882	24,596,266	Crops, Bare Fallow, and Grass—
2,712,097	2,731,159	2,746,511	2,758,743	2,767,516	England
4,637,893	4,669,221	4,690,206	4,713,159	4,738,127	Wales
					Scotland
31,551,612	31,712,413	31,854,532	31,975,784	32,101,909	Total
					Corn Crops—
7,288,186	7,302,772	7,274,811	7,113,122	6,993,699	England
498,968	494,678	491,868	481,577	478,116	Wales
1,407,515	1,412,679	1,400,967	1,390,535	1,403,887	Scotland
9,194,669	9,210,129	9,167,646	8,985,234	8,875,702	Total
					Green Crops—
2,752,434	2,759,174	2,680,983	2,736,488	2,659,134	England
129,466	129,535	122,708	126,951	120,073	Wales
689,974	696,137	687,319	690,879	697,446	Scotland
3,571,874	3,584,846	3,491,010	3,554,318	3,476,653	Total
					Clover, &c.—
2,787,103	2,737,387	2,785,097	2,674,949	2,646,241	England
360,159	351,797	356,486	347,473	332,353	Wales
1,393,011	1,405,032	1,431,524	1,450,951	1,455,745	Scotland
4,540,273	4,494,216	4,573,107	4,473,373	4,434,339	Total
					Total Acreage of—
13,512,993	13,454,017	13,408,235	13,270,356	13,134,410	Arable Land—
1,014,151	998,876	998,310	984,932	961,766	England
3,508,524	3,531,165	3,536,691	3,553,772	3,578,774	Wales
18,035,668	17,984,058	17,943,236	17,809,060	17,674,950	Scotland
					Total
					Permanent Pasture—
10,688,629	10,858,016	11,009,580	11,233,526	11,461,856	England
1,697,946	1,732,283	1,748,201	1,773,811	1,805,750	Wales
1,129,369	1,138,056	1,153,515	1,159,387	1,159,353	Scotland
13,515,944	13,728,355	13,911,296	14,166,724	14,426,959	Total

TABLE G.—*Population\* of the United Kingdom and Value of Imports of Live Stock, Corn and Grain, and various Kinds of Dead Meat and Provisions† in each of the Years 1860 to 1879, and Proportion per Head of Population.*

Years.	Population* of the United Kingdom, Estimated at the middle of each Year.	Imports.				
		Live Cattle, Sheep, and Pigs.	Corn, Grain, and Flour.	Dead Meat and Provisions.†	Total.	Value per Head of Population.
	No.	£	£	£	£	£ s. d.
1860....	28,778,411	2,117,860	31,676,353	8,076,304	41,870,517	1 9 1
'61....	28,974,362	2,211,969	34,922,095	9,151,078	46,285,142	1 11 11
'62....	29,255,015	1,888,236	37,774,148	10,630,734	50,293,118	1 14 5
'63....	29,433,918	2,655,072	25,956,520	10,841,324	39,452,916	1 6 10
'64....	29,628,578	4,275,322	19,882,181	12,157,010	36,314,513	1 4 6
'65....	29,861,908	6,548,413	20,725,483	12,667,838	39,941,734	1 6 9
'66....	30,076,812	5,839,058	30,049,655	13,483,715	49,372,428	1 12 10
'67....	30,334,999	4,148,382	41,368,349	12,489,331	58,006,062	1 18 3
'68....	30,617,718	2,698,496	39,432,624	13,277,683	55,408,803	1 16 2
'69....	30,913,513	5,299,087	37,351,089	15,189,933	57,840,109	1 17 5
'70....	31,205,444	4,654,905	34,170,221	14,773,712	53,598,838	1 14 3
'71....	31,513,442	5,663,150	42,691,464	16,593,668	64,948,282	2 1 4
'72....	31,835,757	4,394,850	51,228,816	18,604,273	74,227,939	2 6 8
'73....	32,124,598	5,418,584	51,737,811	23,854,967	81,011,362	2 10 5
'74....	32,426,369	5,265,041	51,070,202	25,224,958	81,560,201	2 10 4
'75....	32,749,167	7,326,288	53,086,691	25,880,806	86,293,785	2 12 8
'76....	33,093,439	7,260,119	51,812,438	29,851,647	88,924,204	2 13 9
'77....	33,446,930	6,012,564	63,536,322	30,144,013	99,692,899	2 19 7
'78....	33,799,386	7,453,309	59,064,875	32,636,877	99,155,061	2 18 8
'79....	34,155,126	7,075,386	61,261,437	32,835,911	101,172,734	2 19 3

\* Exclusive of the army, navy, and merchant seamen abroad.

† Beef, meat salted or fresh, meat preserved otherwise than by salting, pork, bacon, and hams, butter, cheese, eggs, and potatoes.

## II.—*The Corn Crops of 1880.*

THE following appeared in the *Times* of 13th October, 1880:—

"The corn produce of the United Kingdom reaped in the present harvest has been estimated by various authorities considerably differing in their totals. Early in August appeared in our columns a summary of the reports from every county in Great Britain, which Mr. Henry F. Moore had collected for the annual volume on the cereal harvest of all countries published by M. B. Estienne, of Marseilles. The conclusion was that wheat would be found to yield about 10 per cent. below the average of the past ten years, but about 20 per cent. above the wretched produce of 1879. Mr. H. Kains-Jackson wrote to us taking a more hopeful view, affirming that the crops of wheat, oats, and barley were really satisfactory over large portions of the British Isles, and likely to prove double the yield of a year ago; and Professor John Wrightson assured us that estimates of the harvest would probably be below the truth, owing to the fine blooming period, which was not sufficiently taken into account. In the middle of August, Mr. Thomas C. Scott's annual survey of the situation anticipated

that wheat would turn out an average of 28 bushels per acre, and the crop measure 12 million quarters, or double what it was last year. Under date 23rd August, Mr. Scott put up his estimate to 30 bushels per acre, and, applying this rate to the published agricultural returns, set down the aggregate wheat production of the United Kingdom at 11,500,000 quarters. Mr. Henry F. Moore at first accepted Mr. Scott's earlier valuation of the yield per acre, the 28 bushels being slightly below the standard average for a large number of years; but pointed out that the reduced area of wheat grown brought the probable total production to 10 or  $10\frac{1}{2}$  million quarters. Early in September, however, Mr. Moore wrote that his amended estimate for the United Kingdom is a wheat yield this year of 29 bushels per acre (or about a standard good crop), making the total produce 11 million quarters. Mr. James Caird, late in August, considered the quality as well as yield of the wheats to be so greatly superior, as compared with 1879, that we might reckon on a crop of probably from 3 to 4 million quarters more. If last year's crop were 6 million quarters, this year's would be 10 million quarters. Messrs. J. and C. Sturge's annual circular placed the wheat crop below an average in yield per acre. *Bell's Weekly Messenger* said that, while the wheat crop is satisfactory in some localities, altogether it is deficient to a considerable extent compared with an average of seasons. The *Chamber of Agriculture Journal* estimated the yield at between 24 and 28 bushels per acre, or somewhat below the average. The *Statist* put the wheat crop at 10 per cent. under average, and the total at about 10,900,000 quarters. More reliable still were the elaborate returns collected from many hundreds of growers by the *Agricultural Gazette* and the *Mark Lane Express* in the third week of August, county by county, and from many districts in each county, enabling those journals to conclude alike that the wheat crop is considerably below a good normal average. And the later information they give, since the rains and storms fell upon the latter end of the harvest, renders the account worse instead of better. Now, individual judgment and opinions based upon limited observation in particular divisions of the country cannot be compared for probable justness and accuracy with the collection of very numerous reports from growers and other qualified correspondents in all parts of the kingdom; and setting the facts from fortunate districts alongside those from localities less favoured, at the same time assigning their due relative importance to the different areas of production, it becomes apparent that the general yield of wheat per acre for 1880 is really below the standard average, and that the aggregate production is smaller than has been estimated in any of the foregoing totals.

"This conclusion, borne out by a comparison of statements which we shall give in detail, is not shaken by the more favourable valuation of the crop contributed by so high an authority as Mr. J. B. Lawes in the *Times* of the 1st instant. The experimental plots at Rothamsted, Hertfordshire, are taken as the basis for forming an estimate of the general crop of the country; but, obviously, to judge the whole of the United Kingdom from small allotments on a certain soil in one parish may lead to a very wide



deduction. Mr. Lawes, however, has endeavoured to make allowance for the excessive extent to which his own county and the midlands generally suffered from the bad weather of July. The plot at Rothamsted which has grown wheat every year, and remained without manure of any description for forty years, has yielded this year above the average of the last ten years, though considerably below that of the previous eighteen years. The plot annually manured at the rate of 14 tons of farmyard dung per acre, and growing wheat every year, has given a produce above the averages of periods of ten, of eighteen, and of twenty-eight years. And three plots annually bearing wheat with dressings of artificial manure have yielded in 1880 produce varying little from the average of twenty-eight years. The inference drawn by Mr. Lawes, after allowing for the disparity of treatment of his own and other parts of the kingdom by the weather, is this. He says:—

“I am disposed to think that the wheat crop of the country will slightly exceed an average one, and I should be inclined to estimate it at 30 bushels per acre. There were 3,057,784 acres harvested this season, which, at 30 bushels per acre, give 11,466,690 quarters; and, deducting  $2\frac{1}{2}$  bushels per acre for seed, it leaves available for consumption a little over  $10\frac{1}{2}$  million quarters. Taking the average population to be fed for the year ending 31st August, 1881, at  $34\frac{3}{4}$  millions, and the consumption of wheat per head at 5·65, or rather more than  $5\frac{1}{2}$  bushels, we shall require for our wants a little over  $24\frac{1}{2}$  million quarters. To make up this quantity, we shall require from foreign countries 14 million quarters.’

“As already intimated, we regard the balance of authentic and reliable information as being on the side of a somewhat lower estimate; and it will have been observed that Mr. Kains-Jackson, in a letter which we printed on the 4th instant, corrects his early estimate quoted above, and now values the chief eastern wheat areas of England at 24 bushels per acre, against 30 bushels yield of the southern and some western counties, the result being to place the total English wheat crop at about 15 per cent. under average. In a subsequent article we shall adduce the considerations which lead us to adopt 26 bushels per acre as the probably correct measure of the wheat yield of the United Kingdom for the present year. We remark here that 26 bushels are about equal to the average of the last fifteen years, although  $3\frac{1}{2}$  bushels under the standard average of  $29\frac{1}{2}$  bushels arrived at by an inquiry made in 1870, so comprehensively as to include each poor law union district in the various counties. The yield assumed for the present harvest is slightly greater than the average for the last ten years, and it is about 2 bushels over the yield per acre on an average of the last six years.

“We have grown this season in the United Kingdom, including the islands, 3,070,000 acres of wheat; and at 26 bushels per acre the total produce available for consumption, after deducting seed for an equal number of acres next year, is 9,114,000 quarters. Assuming for the present this estimate to be sufficiently near the truth, and also taking the valuations of the crop in previous years to correctly represent the real averages, deduced as they were from similar comparisons of the elaborately collected opinions of growers and other competent observers, the acreage, yield per acre, and



quantity available for consumption during the last fifteen years, will stand as in the following table:—

*Estimated Wheat Production of the United Kingdom.*

Year.	Acres.	Character of the Yield.	Assumed Bushels per Acre.	Available for Consumption after Deducting Seed.
				Imp. qrs.
1866....	3,661,000	Under average .....	27	11,400,000
'67....	3,640,000	Much under average .....	25	10,390,000
'68....	3,951,000	Much over average .....	34	15,790,000
'69....	3,982,000	Under average .....	27	12,490,000
'70....	3,773,000	Over „ .....	32	14,100,000
'71....	3,831,000	Under „ .....	27	11,970,000
'72....	3,840,000	Much under average .....	23	10,110,000
'73....	3,670,000	„ .....	25	10,550,000
'74....	3,833,000	Over average.....	31	13,700,000
'75....	3,514,000	Much under average .....	23	9,124,000
'76....	3,124,000	Under average .....	27	9,665,000
'77....	3,321,000	Much under average .....	22	9,432,000
'78....	3,382,000	Over average.....	30	11,825,000
'79....	3,056,000	Very much under average ...	18	5,990,000
'80....	3,070,000	Under average .....	26	9,114,000

	Acres.	Assumed Bushels per Acre.	Available for Consumption after Deducting Seed.
			Imp. qrs.
Average of fifteen years .....	3,576,000	26½	11,046,000
„ first five years .....	3,801,000	29	12,842,000
„ last ten „ .....	3,464,000	25 1-5	10,148,000
„ last six „ .....	3,170,000	24½	9,192,000

“The diminution of area is remarkable. During each of the last two years we have grown half-a-million acres short of the general average for the whole period of fifteen years. The average for the first five years of the series, however, was 3,801,000 acres, and for the last six years only 3,170,000 acres, being a reduction of 16½ per cent.; or, in other words, the wheat area now is one-sixth part smaller. This decrease has been a process of only half-a-dozen years, the area in 1874 having been 3,833,000 acres, but having since then fallen, with partial recovery in 1877 and 1878, to 3,056,000 acres in 1879 and 3,070,000 acres in the present year.

“We have said that, according to an inquiry made in 1870, a standard or normal average yield per acre was taken at 29½ bushels; and it will be observed that this really was about the average of the first five years, 1866 to 1870. But for the ten years—1871 to 1880—the average has been 25 1-5 bushels, and for the last six years of the series, namely, 1875 to 1880, it has been no more than 24½ bushels. The crop has been over the standard only four times in the fifteen years, namely, in 1868, 1870, 1874 and 1878; and the average for the fifteen years is 26½ bushels, or 3 bushels below the standard average. Unless a more favourable cycle of seasons should recur his predominance of low returns will be held to lower that per-

manent average. The calculated quantity of wheat available for consumption (mainly for bread, but to a small extent also for feeding animals), after deducting some 9 pecks per acre on the next year's acreage as an allowance for seed, appears in the right-hand column of the table. The general average for the fifteen years is 11,046,000 quarters; but, while for the first five years it was 12,842,000 quarters, for the last six years it is only 9,192,000 quarters, a decrease of  $28\frac{1}{2}$  per cent., or considerably more than a fourth.

"To illustrate the cause of this falling off, or the conditions which have made the business of wheat growing worth less to the cultivator, we give in the next table the yield per acre, the price according to the imperial averages, and the computed value of the wheat crop per acre for each year. As the farmer does not realise for the whole of his crop anything like the figures obtained as 'corn returns,' which include resales by dealers, and take no account of the sometimes large proportion of tail corn never brought to market, we have not set down in the fourth column amounts consisting of the number of bushels per acre multiplied by the official price per bushel, but from such amounts we have deducted in some cases 5, in others 10, 12, and up to 15 per cent., in proportion to the inferiority of the crop, the quantity of tail being, on the whole, greatest when the yield is lowest, and *vice versa*.

*Estimated Value per Acre of Home Grown Wheat.*

Harvest Year, September 1 to August 31.	Assumed Yield per Acre in Bushels.	Official Average Price per Quarter for Twelve Months, July 1 to June 30.	Extreme Average Value per Acre, Deducting Seed, and also Deducting 5 to 15 per Cent. on Account of Tail Corn and Excess in Price.
		s. d.	£ s. d.
1866-67 .....	27	58 —	8 1 6
'67-68 .....	25	89 3	8 16 3
'68-69 .....	34	51 8	9 4 10
'69-70 .....	27	45 11	6 7 10
'70-71 .....	32	53 5	9 8 9
'71-72 .....	27	55 3	7 14 —
'72-73 .....	23	57 1	6 9 4
'73-74 .....	25	61 3	7 16 9
'74-75 .....	31	46 4	7 18 2
'75-76 .....	23	46 3	5 5 —
'76-77 .....	27	55 3	7 14 —
'77-78 .....	22	54 —	5 16 7
'78-79 .....	30	41 10	6 17 9
'79-80 .....	18	46 7	3 18 —
'80-81 .....	26	—	—
Average of fourteen years	26½	53 —	7 4 11
Average of first five years	29	55 7	8 7 10
„ last nine „	25 1·5	51 6½	6 12 2
„ last five „	24½	48 9½	5 18 3

"The result brought out is that, on an average of fourteen years, the value of the wheat crop to the farmer when the seed has been deducted is 7*l.* 4*s.* 11*d.* per acre; for the first five years, 1866 to 1870, it was 8*l.* 7*s.* 10*d.*; for the last nine years, 6*l.* 12*s.* 2*d.*; and

for the last five years, namely, 1875 to 1879, only 5*l.* 18*s.* 3*d.* per acre. The diminution between the first five and the last five years has been 2*l.* 19*s.* 7*d.* per acre, or a loss of nearly 37 per cent. Should present prices rule during the current harvest year, an average of 40*s.* per quarter will bring the general average value of the wheat crop of 1880 to not more than about 5*l.* 10*s.* per acre to the farmer. Fall in price as well as decrease in yield has conduced to reduction of the area latterly cultivated. The imperial corn average, or price in the selected markets employed for fixing the tithe rent charge, averaged 53*s.* for fourteen harvests; it was 55*s.* 7*d.* for the first five harvests, namely, 1866 to 1870; it was 51*s.* 6½*d.* for the last nine harvests, namely, 1871 to 1879; and it sank to 48*s.* 9½*d.* for the last five years ending with 1879. Should the present wheat crop have to be sold, as appears most likely, at no more than about 40*s.* per quarter, the average price for the last three years will be 42*s.* 10*d.*, or 10*s.* a quarter below the average of the last fourteen years. According to no calculation of agricultural experts has it ever been shown how this cereal can be grown with profit in ordinary farm practice to realise only 5*l.* 10*s.* up to 6*l.* per acre for the grain, unless rents and labour cost and public charges are materially modified. Yet, hitherto, no one has demonstrated how the crop can be altogether banished from future rotations, or what necessary straw crop may be substituted for wheat with a clear prospect of being remunerative in a majority of seasons.

“Our estimate of the home and foreign supply of wheat for the United Kingdom for the fifteen years during which the agricultural returns have ascertained the number of acres sown, is given in the following table:—

*Home and Foreign Supply of Wheat for the United Kingdom.*

Harvest Year, September 1 to August 31.	Estimated Home Produce available for Consumption.	Imports of Wheat and Flour, Deducting Exports.	Total Available for Consumption.
	Imp. qrs.	Imp. qrs.	Imp. qrs.
1866-67 .....	11,440,000	7,600,000	19,040,000
'67-68 .....	10,390,000	9,010,000	19,400,000
'68-69 .....	15,790,000	7,880,000	23,670,000
'69-70 .....	12,490,000	9,580,000	22,070,000
'70-71 .....	14,100,000	7,950,000	22,050,000
'71-72 .....	11,970,000	9,320,000	21,290,000
'72-73 .....	10,110,000	11,720,000	21,830,000
'73-74 .....	10,550,000	11,230,000	21,780,000
'74-75 .....	13,700,000	11,640,000	25,340,000
'75-76 .....	9,124,000	13,940,000	23,064,000
'76-77 .....	9,665,000	12,156,000	21,821,000
'77-78 .....	9,432,000	14,503,000	23,935,000
'78-79 .....	11,325,000	14,417,000	26,242,000
'79-80 .....	5,990,000	16,400,000	22,390,000
'80-81 .....	5,114,000	15,000,000	24,000,000
Average of fifteen years	11,046,000	11,490,000	22,536,000
Average of first five years	12,842,000	8,404,000	21,246,000
„ last ten „	10,148,000	13,033,000	23,181,000
„ last six „	9,192,000	14,403,000	23,595,000

“The general averages for the period of fifteen years, 1866 to 1880, are an annual growth of 11,046,000 quarters available for consumption; an importation, *minus* exports, of 11,490,000 quarters, making a total consumption of 22,536,000 quarters. For the first five years the average home production was 12,842,000 quarters; the imports, 8,404,000 quarters, and the total consumption, 21,246,000 quarters per year. For the last six years, however, the averages have been 9,192,000 quarters produced in the United Kingdom, 14,403,000 quarters imported, and 23,595,000 quarters consumed.

If we have now about 9 million quarters of home grown wheat available for consumption, and there was very little of the old stock left at the commencement of the last harvest year, we shall want 15 million quarters from over the sea to make up a full supply of 24 million quarters; and in spite of recent fluctuations in the arrivals from America, there are signs of abundance to come; so that we may feel more comfortable as to our chance of receiving 15 million quarters during the current harvest year than we were of importing the 16,400,000 quarters which came to us during the last twelve months in August.”

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### III.—*Ten Years' Results of the London School Board.*

At the meeting of the School Board for London, on 30th September last, the chairman, Sir Charles Reed, M.P., stated that as the board was constituted in the autumn of 1870, it was now possible to give the results for ten years, and he took the opportunity to institute a comparison between the state of elementary education in the metropolis now, and its condition at the time of the passing of the Elementary Education Act. He said:—

“The business of the board is twofold. It has on the one hand to discuss great questions of principle and method, with a view to attain more effectually the grand end it has set before it; while on the other it has to work the existing machinery, supply lack of accommodation, secure and keep up the attendance of children, mainly of the roughest class, and provide for their instruction. The former part—the theoretic—is of great importance; but the latter, which is the practical part, is that in which, after all, the public take keenest interest. They have a right to be satisfied that we spare no pains to arrive at the best way of doing the work; but they would justly complain if we were to arrest the teaching of the children until our methods were perfect; and they are chiefly desirous to know the results actually attained. It is for this purpose mainly that the board confides in the discretion of its chairman to present annually a brief statement of its work.

“It is not for me to speak in praise of those results; but it is a satisfaction to quote the opinion of one of the most experienced of Her Majesty’s inspectors who, in his report of schools examined by him in the Southwark district, says:—‘I would again express in



general terms a high appreciation of the board's work, its vast extent and rapid spread, its considerable success and immense superiority to earlier efforts on behalf of popular education.'

"That the work of the board which I am about to describe may be rightly appreciated, it is necessary to recall the requirements of the metropolitan area. The population of the elementary school class, between the ages of 3 and 13, is at present, according to the basis adopted in the office of the registrar general, 740,577, besides 65,640 children between the ages of 13 and 14, many of whom may be compelled to attend school under Lord Sandon's Act of 1876. The schedules sent in by the visitors of the board last Easter, give the number as somewhat less.

"Looking now to the accommodation for scholars of the elementary class, it is not possible to take an earlier starting point for comparison than the close of the year 1871, when the voluntary schools had furnished their returns, and our own work had just begun. There was at that time accommodation in all for 262,259 children, or 39·4 per cent. of the estimated population of school age. At midsummer last the denominational schools had provision for 269,469 children, or 8,000 more than in 1871, while we had provided for 225,236, giving a total accommodation for 494,705 out of a present child population of 740,577, or 66·8 per cent. Thus we have now seats for two out of every three children needing elementary education.

"If we confine our view to the past year, it is seen that the accommodation afforded by the denominational schools has declined 2,884 places, while ours has increased by 15,008. This latter increase has involved the acceptance of tenders for twenty-four new schools, accommodating 21,751 children. These schools are planned upon our usual scale, smaller schools being proportionately more expensive.\*

"The average cost per head on the tenders of these twenty-four schools last built has been 8*l.* 18*s.* 5*d.*, which includes the provision of teachers' rooms, school keepers' houses, boundary walls, and in several cases extra deep foundations. The buildings, while free from display, are designed to be durable, attractive and well equipped for their purpose. The board has now acquired by purchase freehold sites, giving a total area of over 151 acres, henceforth the property of the ratepayers of the metropolis. In each case the department has sanctioned both the site selected and the building proposed to be erected upon it. Wherever it has been desired, our schools have been opened publicly, and it has been the practice on these occasions to present a statement showing the need for the school. The attendance of the parents at these opening ceremonies has always been such as to prove the great interest taken in our work; and our action has been justified by the readiness with which the children have flocked in as soon as the doors were opened, and the full attendance effected without permanent injury to existing schools in the neighbourhood.

\* Of 216 new permanent schools of the board, 55 are planned to accommodate under 750 children, 77 to hold under 1,000 children, 78 to hold under 1,500, and 6 to hold upwards of 1,500.

" On the school roll I need not dwell ; a glance at the subjoined table will show that we have several thousands of children more upon our rolls than we could accommodate were all to attend at one time ; whereas the voluntary schools have a roll considerably below their accommodation. A surer test of effective working is found in the average daily attendance. This has risen in the voluntary schools from 173,406 at the end of 1871 to 180,706 at midsummer last, at which latter date our schools showed a daily average of 192,995 ; so that now, with accommodation for 44,000 children fewer than the voluntary schools, we have an attendance of 12,000 more. The last year has diminished their attendance by 793, while ours has been augmented by 19,192.\*

" This average daily attendance in the efficient elementary schools of London, of 373,701 children as compared with the 174,301 at the end of 1871, has been attained through the exercise of our compulsory powers. So early as 1873 Mr. Forster, then vice-president of the privy council, bore this testimony :—' We gave you a great work, and when we gave you the power we did not think that you could accomplish one part especially, I mean the work of the compulsory powers. I thought Manchester and Liverpool might, but it was a most unexpected satisfaction to me when the London School Board did it, and I think that much of the success which has attended the putting that law in effect is due to the wisdom and moderation with which you have put it into force.' [*Times*, 22nd November, 1873.] And the present vice-president

\* The above details may be more clearly shown in tabular form, thus :—

	Christmas, 1871.	Christmas, 1876.	Midsummer, 1879.	Midsummer, 1880.
Population of school age .....	664,723	709,715	733,446	710,577
Accommodation in voluntary schools	261,158	287,116	272,353	269,469
„ board schools .....	1,101	146,074	210,228	225,236
Total .....	262,259	433,190	482,581	494,705
Average number on roll of voluntary schools .....	221,401	259,436	232,874	231,578
Average number on roll of board schools .....	1,117	146,031	215,779	238,660
Total .....	222,518	405,467	448,653	470,238
Average attendance in voluntary schools .....	173,406	199,605	181,499	180,706
Average attendance in board schools....	895	114,380	173,803	192,995
Total .....	174,301	313,985	355,302	373,701

This shows an increase for the eight and a-half years of 88·6 in accommodation, 121·5 in the school roll, and 114·3 in attendance.

has recently said that it was owing to the discretion with which the various school boards and local authorities had carried the bye-laws into effect that 'so large a measure of success had been attained, because had the system been carried out rigidly and harshly it must have infallibly broken down.' It is due to the divisional committees of the board to acknowledge the patience and leniency which they have shown in the application of these powers. Now that parents have come to understand that their children must go to school, and that public opinion supports the law, the task of our visitors will be easier, and the cost may in time be considerably reduced. Our present staff consists of 223 visitors, under 11 superintendents and 20 assistants. In the half-year ended at midsummer, the preliminary notice to parents was issued in 36,852 cases, with the result of attendance being given or improved in 26,193 cases. For the same half-year summonses were taken out in the case of 3,012 children: the order to attend school being in all cases complied with, or a small fine imposed.

"There can be little doubt, that it is owing in a large degree to the success of compulsion in London, that the Government has felt encouraged to apply it to the whole population of England and Wales. We shall be gainers by this extension. There are numbers of idle children about the streets of the metropolis, who come in day by day from the outer suburbs, where their parents have gone to live, so as to be beyond the reach of a school board; and in the eyes of many we get the discredit of having failed to do our duty by these children. The new Act will enclose these in parishes like Tottenham, which, with a school population of at least 5,000, has only just elected a school board, and Edmonton, which, with nearly as many, has a board only now forming.

"Although the average daily attendance in our schools has greatly improved,\* being 74·9 on the average number on the roll at midsummer, 1875, and 80·8 at midsummer in the current year, we do not profess to be satisfied with it; and it must be our constant endeavour to raise the percentage.

"We are frequently asked how far we have 'the right class' of children, it being implied that board schools were devised solely for what are commonly and very improperly called gutter children. The truth of the matter is that our schools were intended to supply a deficiency of accommodation, the parents being left as sole judges of the schools suitable for their children. So long as there remains notable lack of secondary schools, and parents find in the board schools better teaching than they can secure elsewhere, no one can

\* Table showing the improvement in the attendance of children at board schools in March, 1873-74 and March, 1879-80 :—

	Number on the Roll.	Average Attendance.	Percentage of Absentees.
March, 1873 .....	35,766	22,145	38·0
" '74 .....	67,576	47,346	29·9
" '79 .....	209,337	168,167	19·5
" '80 .....	232,726	186,813	19·7



dispute their right to apply on behalf of their children for vacant seats in our schools. But while we cannot refuse the child of a well-to-do tradesman, nor even of Her Majesty's inspector himself, if he seeks admission for it, it is certain that we do secure the attendance of the very poor. Let anyone visit our schools in the lower neighbourhoods, and he can put this assertion to the test. Mr. Stokes says of his district, 'Some of the board schools are attended by children as poor and neglected as can anywhere be found; while other board schools, though less wretched, undertake their full share of hard, rough work.' The very children who were dirty and ill-conditioned, are now clean and better dressed, the result not of improved means on the part of the parents, but of a readiness to make sacrifices for the sake of the young. There is a general testimony that 'the schools have lifted up the population.'

"To do our duty by such children and yet considerably to raise the fees is impossible. There are no doubt many children under our care whose parents could afford 4*d.*, 6*d.*, or 9*d.* a-week; and we would willingly charge it if it were possible to have different rates of payment in the same school, or to provide separate schools for the upper working class and the lower. But it not being possible to introduce these social distinctions, we are obliged to fix the fee in each school at the average ability of the parents. As the vice-president of the council said last month, 'In London and in large towns it was absolutely necessary that there should be low fee schools, owing to the impossibility of making full inquiry into the circumstances of the parents of every child.' As far back as March, 1879, the board requested the divisional members in each division of the metropolis to make a report on this subject of fees. The returns have been submitted to members of the present board for consideration, and a report may shortly be expected from the school management committee. At present we have:—

School places at ....	1 <i>d.</i>	2 <i>d.</i>	3 <i>d.</i>	4 <i>d.</i>	6 <i>d.</i>
	49,246	109,903	49,887	10,284	3,807

giving a total of 223,127 at an average fee of 2*s.* 16*d.*

"At the present time the fees of 4,785 children (or less than 2½ per cent.) are being remitted by the board. This is exclusive of cases where they are paid by the guardians. As a matter of reward, certain fees are paid by the department for children who earn honour certificates for proficiency and regular attendance. Of these, the schools of the board received 318 for the half-year ended September, 1879, and 560 for that ended in March last.

"Even when allowing for the class of children with which we have to deal, punctuality is a weak point in many of our schools; and this is the more to be regretted as it interferes with the scripture instruction, which is everywhere given at the beginning of the morning session. One of our inspectors reports that 'in very many schools not half the children are present when the Bible lesson begins, in some not a fourth,' and adds, 'no feature in our



school work presents to my mind such an unsatisfactory appearance as this unpunctuality.' The board naturally casts the responsibility upon the teachers; but the task is a very difficult one for them unless they are supported by the hearty co-operation of the parents.

"Notwithstanding the admitted defect just referred to, the interest taken by the large bulk of our children in the daily scripture lesson is undiminished. The voluntary examination for the prizes given by Mr. Peek and the Religious Tract Society attracted this year 127,501 children, as compared with 112,979 in 1879. The examiner says:—'As the above total nearly corresponds to the ordinary daily attendance, and as the attendance at this examination is perfectly optional, we have a striking proof that, with scarcely any exception, the parents of the children who attend our schools do not object to the religious instruction which is there given, and I am convinced that a great many of them highly value it.' From the children in Standards IV, V, and VI, who were examined, the teachers selected about 6,000 to compete, in a written examination, for prizes and certificates; but no fewer than 112 boys' departments, and 107 girls' departments failed to gain a single prize, a failure which can be attributed only to lack of earnestness on the part of teachers.

"In the three fundamental subjects our schools have done well; for the year ended 25th March last, their percentages of passes were about the same as in the previous year, despite the raising of the standard examination, and considerably above those of elementary schools generally, thus:—

Percentage of Passes in	Schools in England and Wales.	London Board Schools.
Reading .....	87·53	88·96
Writing .....	80·08	86·3
Arithmetic .....	73·87	81·99

"Taking our average of passes at 85·75, I find we still head the list, Board schools generally coming next with 82·31, Roman Catholic schools 81·62, next British schools 81·53, Wesleyan schools 81·5, and National schools 79·27. The registrar general says:—'Looking at the spread of elementary education as evidenced by the constantly decreasing number of men and women failing to write their names in the marriage register, the country is to be congratulated on the success attending its efforts in this direction, which doubtless will be shown in a more striking manner when the children now receiving education at board and other schools become men and women.' \*

"That education does not soar too high with us is however shown by the fact that, taking the 119 departments inspected in March, April and May last, 24·1 of the children were in the first standard, 26·5 in the second, and 22·4 in the third, the limit of

\* During the years 1841-45 the percentage in London of men who signed the marriage register with marks was 11·8, and of women 24; for the five years 1874-78 the numbers were 8 and 12 respectively.

which is to read a short paragraph, write a sentence from dictation, and do sums in long division and compound addition. This leaves only 26·8 of the scholars for the upper standards, and justifies one of our inspectors in saying that 'the charge of over instructing is wholly groundless; only 16·5 of the children receive instruction in specific subjects, the remainder, 83·5, being taught merely the three R's, and in the case of those above Standard I a few simple facts relating to geography and grammar.'

"These specific subjects come in when children have reached the fourth standard; but there is ample evidence to show that their value depends on the way in which they are taught. Literature, as it is called, is the favourite subject, and one of great value as giving children a wider command of language. But it may be taught as 'a purely mechanical exercise of memory which has no educational value.' The boy, says Mr. Stewart, who defined the labouring swain as 'the farm pig what toils about,' is no exception; and the same barren results appear in many of the answers on domestic economy and cookery. He sums up some strictures, on the justice of which it is not for me to pass any opinion, by saying, 'I do not think that schools are now as successful as they once were in giving children that real education which is never wholly lost, and if I may trust to the lessons learned by my own experience, their inferiority is due to (1) the neglect of the art of teaching, (2) the conversion of standards of examination into standards of organisation, and (3) the ambitious multiplying of subjects which teachers put in their time tables,' and he refers to the dread of low percentages of passes and diminished grants as causes which keep many from pursuing the more solid, if less showy, paths of work. In cases, however, where the reading is intelligent, the inclusion of the specific subjects in the upper standards is of the greatest value, not only for the information imparted, which bears upon the most practical side of the children's future life, but for the help and relish they lend to the fundamental subjects. Lord Norton's motion for limiting the teaching in public elementary schools to the latter would, if adopted, defeat its own object by the monotony introduced into the schools of the people. The exemption of Switzerland from rinderpest has been ascribed on good authority to the rich variety of food which the cattle find on the Alpine pastures; and the same holds good in education. Evidence was given in a recent debate in parliament that elementary science was a subject full of interest for the young, while the vice-president adduced instances to prove that the introduction of class subjects at once led to a brighter and more successful teaching of the fundamental subjects.

"The cookery scheme adopted by the board is being gradually brought into operation with satisfactory results. The parents of the girls greatly appreciate this branch of the work, and the lessons given in the kitchens are in many cases repeated in the home.

"We have recently memorialised the department on the subject of the increasing stringency of the needlework requirements of the code. Our examiner visits nearly 140 departments each quarter; she reports that an undue fear of the government inspector's visit

causes a good deal of hasty and uneven work, but that the general progress is good, and presents a marked contrast with 'the dark ages of needlework.'

"The report from Colonel Battersby, on the last inspection of boys in drill, should be sufficient to meet the objections of those who imagine we are training up a nation of young warriors. The code distinctly prescribes 'military drill,' but when it is understood that this means chiefly extension motions and orderly marching, and that the boys are not armed even with sticks, the fear of a martial spirit being fostered may be dismissed. 'I do not hesitate to say,' says the inspector, 'that the best drilled school will be the most easily managed, and that more instruction will be imparted in a given time, and with less expenditure of the master's power, where he has been able to enforce a prompt and accurate compliance with his orders on the drill ground.' Since December, 1878, special efforts have been made to promote the physical improvement of our girls, and the services of an experienced Swedish teacher have been engaged for the purpose.

"Swimming is a subject to the importance of which the members of the board are fully alive, though it is beyond their province to make direct provision for it at the cost of the ratepayers. We are, however, glad to observe that about 2,000 children annually have availed themselves of the facilities offered by the London Schools Swimming Club, to which many of us individually subscribe. 'The bath proprietors throughout London have readily assisted the club, and the First Commissioner of Works allows it to use the Victoria Park swimming lake on Saturday mornings, when anyone who visits the lake will enjoy a novel and pleasing sight not easily to be forgotten.' In this department, the late Miss Chessar greatly assisted us; and the loss of her encouragement will be keenly felt.

"The singing instructor reports that his classes for pupil teachers were joined last September by 1,720; he has held also nine classes for head and assistant teachers, at which 300 have been in regular attendance.

"The kindergarten instructor has continued to visit certain schools. For six years classes have been held for the teachers of infants, where 'any teacher who wishes to make these exercises useful to her little scholars, is able to get the information she wants.'

"It is largely due to this educational agency that the infant schools of the board have attained their high superiority. The parents show great readiness in sparing their little ones, and we have many excellent teachers who devote themselves to making the schools as happy and attractive as possible. In looking over the reports of our inspectors, I have been struck to find almost unbroken praise of the infant departments. Reports like the following are of constant occurrence:—'Mrs. T. conducts this school with great kindness, earnestness and ability; the children are bright and cheerful, and have passed a good examination.'

"The library scheme of the board by which select libraries are established in connection with every permanent school, has proved a complete success, the children highly appreciating the privilege of



borrowing books for perusal in their homes, into which, very often, pure and wholesome literature has never before found an entrance. The libraries being found too small, the board has enlarged them from 10*l.* to 12*l.* in value; the books are passed on every six months, from school to school, so as to supply a frequent change of reading.

“The rewards we have it in our power to offer are not numerous. At present about one in four of our scholars obtains a certificate or book for regular attendance; and we have, through the generosity of various London companies and individuals, a small number of scholarships at our disposal. During the current year we have received two new scholarships from Mrs. Charles Buxton and Mr. Sydney C. Buxton, one from the Clothworkers’ Company, five from the Drapers’ Company, and one from Mr. A. G. Crowder. These, with two other scholarships, which are renewals, have been taken by eight boys, the sons respectively of a French polisher, a shoe manufacturer, a commercial traveller, a schoolmaster, an engine fitter, a manager, and a plumber; and by three girls, daughters of a mariner, a gilder and a builder. The head master of the City of London School, where several of our pupils are holding their scholarships, reports that they have done extremely well, but that a little special tuition is needed in order to bridge the interval between the board school and the middle class public school.

“It has long been our contention that large funds originally intended for purposes of education were being diverted into other channels; and we cannot therefore but feel gratified at the impression produced by the board’s report on the city parochial charities of London. Since I last addressed you, we have presented a petition to parliament, praying that, in the event of proposals for a re-appropriation of city trusts being entertained, it will make such enactment as may tend to the advancement of education under our direction, acting for the metropolis. A petition from the board in reference to St. Katharine’s Hospital has also been laid before parliament. It is the custom of the charity commissioners to forward to us the schemes drawn up by them for the future administration of metropolitan endowments and to invite us to express our opinion, with the provision, in many cases, that we shall nominate members of the governing bodies. The latest instance of this is in connection with Christ’s Hospital, which provides that the school board for London shall appoint four governors. The scheme also contemplates the establishment of sixty scholarships to be competed for by children who have attended public elementary schools in the metropolis;\* and it is not too much to expect that in other cases a like course may be adopted.

\* Article 102 of the draft scheme is as follows:—

“Sixty places shall be allotted to be competed for by boys not being over 13 years of age at the time of competition, and having been educated for at least three years immediately preceding such competition in public elementary schools in the metropolis, as defined by the Elementary Education Act, 1870, or any statutory modification thereof in force for the time being, and having passed the sixth standard of the Code of Minutes of the Education Department in force for the time being, and being recommended as fit candidates by the managers of the schools last attended by them respectively.”



"The special departments of our work remain to be noticed. Our half-time schools are in good order, the average attendance at that in Bethnal Green being 88·8 of the average number on the roll. At the other, situated in the Tower Hamlets, it has been deemed advisable to admit whole time children as well as half-timers, and the attendance has increased threefold.

"Of the blind nearly 100 are now under instruction, brought by their parents into twenty-five of our schools. The superintendent believes that at least as many are not yet gathered in, and he points out that there is a class of children who are only partially blind, whose attendance is extremely difficult to secure. 'Season after season the visitors are met with the excuse that their eyes are too bad just now, but that the next quarter or next year they may be sent. . . . . Meanwhile the children reach 14 years of age, having lost advantages which were specially needed by those who miss much of the sympathy extended to the wholly blind.'

"For the deaf and dumb we are still making experiments in the oral and manual systems. Young children are placed at first in the oral division, where they are taught to acquire articulate sounds and then to combine these into syllables and words. But where lip-reading fails to be an adequate means of communication, the manual alphabet is resorted to. The attendance for the quarter ended at Lady-day last was 97, out of 162 on the books. The attendance at the centres where instruction is given has been more than doubled by the voluntary establishment of homes where the children who come from a distance can reside during the week.

"In carrying out the provisions of the Industrial Schools Act, the officers of the board had, up to midsummer last, reported on 11,309 cases of destitute children not chargeable with crime. Of these 6,001 have been withdrawn from the streets, and distributed among fifty-two industrial schools throughout the country, with which the board has temporary arrangements, or sent to our own schools at Brentwood and Grays. At midsummer last we had 3,289 children of this class under our care.

"The school at Brentwood is certified for 100 boys, and is conducted on the half-time system, the boys receiving instruction and industrial training alternately. Her Majesty's assistant inspector, on his last visit, reported that the education was 'very well attended to,' and that all the classes were 'carefully instructed by competent and painstaking teachers.' Every effort is made when the boys leave to place them in suitable employments. The inspector says, however, that the establishment in London of a boys' working home would greatly facilitate the discharge of the boys, and keep them under control until they were ready to earn their own living.

"The same half-time system is adopted on board the Shaftesbury training ship, which is certified at present to receive 350 boys; these are selected after medical examination. Those who leave for service at sea are provided with a suitable kit. The inspector, who last July visited the ship and its tender the 'Swift,' reports as follows:— 'The boys look particularly healthy and bright. The ship has made excellent progress in all respects. Her present condition of fitness

and efficiency places her in the front rank of our training ships of this class and character.

"The object of our truant school, as is well known, is the exercise for a brief space of wise and firm rule over stubborn boys, 'the irrepressible bad boys' lately referred to in the *Times*, who have successfully defied the authority of parents and friends by habitually absenting themselves from school. Up to midsummer last 213 refractory lads had been received with the consent of their parents. As a rule, upon promise of obedience, they are licensed out after an average absence from home of twelve weeks. It is most satisfactory to note that these boys after going out have made eighty-two school attendances out of 100, proving that the timely intervention of the board has secured the object contemplated.

"The prison returns continue to show that juvenile crime is being diminished, scarcely any convictions being reported of children under 13 years of age. When this fact is set against the statistics recently published of crime in the metropolis fifteen years ago, it affords proof that the action of the board has largely contributed to check juvenile delinquency. At the same time the reformatory returns show that the ranks of juvenile depredators are continually reinforced by importations of bad boys who drift into the metropolis from the lowest agricultural class, and their tendency is to 'accumulate in masses.'

"To turn now to the subjects affecting principle and method, which have been prominent in our debates during the past year, I may notice first the code by which our work is regulated. It is known that there have been two codes presented to parliament this year, which may be called the Richmond and Spencer codes respectively. The former contained some changes of so grave a nature that the board drew up a memorial, showing the evils that, in its opinion, would arise if they were carried into effect. In consequence of this and other representations, they were dropped by the government which came into power in the spring, on the ground that time was required for considering the whole question.

"Immediately on the accession of the present government, we renewed our request that the system called centre teaching might be sanctioned. The object of this plan is to give pupil teachers, grouped in districts, the advantage of united instruction from skilled teachers, not of their own but of any school. The readiness of their lordships to admit the practical value of this system demands our acknowledgment. They have met our representations by making such an alteration in the second schedule of the new code as will allow us to make arrangements for this most desirable end.

"This improvement is the more important, since many of our pupil teachers are unable to gain admission to the existing overcrowded training colleges, and it may not be generally known that we have no such institution of our own; hence we are mainly dependent for our supply of teachers upon colleges under denominational control. What becomes of these pupil teachers? They must either abandon the teaching profession, or be appointed by the board as assistant teachers without going to college at all. 'The loss of a college training,' says one of our inspectors, 'is an irreparable loss;

I trust that the number of these appointments of ex-pupil teachers will be kept as low as possible, for it would be a calamity to have our schools taught by a body of poorly educated teachers.'

"The expenditure of the board on school management is shown in the accompanying table:—

	Salaries of Teachers.	Books and Apparatus.	Furniture and Cleaning.	Rent, Rates, &c.	Fuel and Lights.	Repairs to Buildings.	Sundries.
	£ s. d.	s. d.	s. d.	s. d.	d.	d.	d.
Gross cost per child for the half-year ended Lady-day, 1880	1 2 3	1 7	1 10	1 6	11	11	7

"The gross cost per child for the half-year was thus 1*l.* 9*s.* 7*d.*; but during the same period the average income per child from fees, grant, &c., was 11*s.* 5*d.*, so that the net cost was 18*s.* 2*d.* This shows a decrease for the half-year on every item, making a total reduction of 1*s.* 5*d.* for every child. From this table it is clear that the payment to teachers is the principal item of the expense of maintenance. Our staff is at present as under:—

	Number.	Average Fixed Salary.	Average Share of Grant.	Average Total.
		£ s. d.	£ s. d.	£ s. d.
Head masters .....	274	162 16 11	78 15 2	241 12 1
„ mistresses .....	500	107 6 11	54 7 6	161 14 4
Assistant masters.....	897	87 9 4	23 15 8	111 5 -
„ mistresses.....	1,458	69 - 5	20 15 8	80 16 1
Total .....	3,129	At an average of		121 11 8

"The board has under its consideration a proposal for paying its teachers less by the results of examination, so as to secure greater thoroughness, and to remove the temptation of working feverishly for immediate results. The only point as yet decided is that the basis of calculation shall be accommodation as against attendance. A comparison has been made between the cost of school maintenance in London, and some large provincial towns, and a special committee of the board has been appointed to investigate this subject. The answers to its inquiries are now being tabulated, and we may expect from it an early report, which will, we trust, show some feasible way of limiting the expenditure without starving the schools.

"Another committee, which was charged with the duty of reporting to us upon the normal staff of teachers for each school, has made its report, which is now in the hands of the divisional members.

"An important question has been raised during the year as to the mode of selection of our head teachers, whose capacity and influence for good greatly vary. 'Your committee,' writes one of our inspectors, 'will be aware that the discipline in some of the



schools in the very worst sections of Finsbury and Marylebone is simply perfect; and there seems no reason why it should not be equally perfect in all schools save, of course, the excellent reason that the supply of thoroughly efficient teachers falls short of the demand.' At present the nomination of teachers comes from the local managers; and the suggestion is that this system is defective. Mr. Stokes, in his general report for the present year, expresses an opinion worthy of consideration. 'The management of London board schools has always been perhaps our greatest difficulty. It is plain that a central board of fifty members, however well qualified they may be to frame a code of rules, cannot attend to their administration in numerous schools scattered over the wide area of the metropolitan boroughs. Hence, in order to obtain the requisite oversight, residents in each vicinity are associated with one or more members of the board in forming a local committee of management, whose chief duty is to nominate teachers for appointment by the board. I am unable to report, from personal observation in board schools, that the management so provided is efficient. . . . For, whether from paucity of persons willing to serve upon local committees or from other causes, it happens that a school committee manages, not one school, but a group of schools. The wisdom of this arrangement may be doubted. Its effect certainly is to lessen the probability of getting the service efficiently performed, to increase the risk of a denominational complexion in the school committee and of teachers' nominations made on other than purely educational grounds. Second only in importance to the original selection of conscientious and capable teachers is the means of the speedy removal of teachers who, after appointment, proved themselves undeserving of such a character. I do not know that any system is in operation to secure this end.' The board is not responsible for any expression of opinion on this subject, but it has been considered well to order a report upon it; and that report, which is decidedly adverse to any radical change in the present system of local managers, stands for early discussion.

"Our borrowing powers are still before the courts of law. In the steps already taken the board has acted with the concurrence of the education department and the local government board; and it now remains to decide whether the appeal shall be carried to the House of Lords.

"The changes upon the board have been many, no fewer than 125 members having taken a share in its work during the past ten years. At the triennial election held last November there were returned twenty-three new members; of the original board only twelve are members of the existing board. The last to be removed was our valued colleague, Mr. James Watson, who in the year 1871, succeeded Lord Sandon as chairman of the statistical committee, and took throughout the deepest interest in the development of our work. Still more lately a true friend of the board has been taken away in the person of Miss Chessar, whose active and intelligent services on the second board many of us gratefully remember."

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IV.—*The Annual Local Taxation Returns of 1878-79.*

THE following memorandum by Mr. Frederick Purdy, Principal of the Statistical Department of the Local Government Board, is taken from *The Annual Local Taxation Returns (England)*, 1878-79:—

“1. This is the ninth annual return of local taxation which has been tabulated under the direction of the Local Government Board. Three summaries in the following pages are now printed in full which previously had only appeared as brief abstracts: these are the poor rate return, the county rate return, and the borough rate return.

“2. The urban sanitary rates in this volume are shown in two sections, viz., rates raised by town councils acting as the urban sanitary authority, and the rates levied by other local bodies, and whose accounts are subject to the provisions of the District Auditors' Act.

“The total raised during the year 1878-79 by local taxation was 30,898,828*l.* In addition to this sum, treasury subventions, amounting to 2,153,362*l.*, were received, in easement of the local rates:—

	Taxation.		
	Local.	Imperial.	Total.
	£	£	£
1. Levied by rates falling on rate- able property .....	25,685,896	2,146,274	27,832,170
2. Levied by tolls, dues, and rents, falling on traffic .....	4,756,349	7,088	4,763,437
3. Levied by duties falling on con- sumable articles .....	456,583	—	456,583
Total .....	30,898,828	2,153,362	33,052,190

“3. As stated in previous returns, the treasury grants in aid of local taxation exceed the sums entered in the accounts of the local authorities forwarded to this Board. This difference arises, for the most part, from the Government taking upon itself several charges in relief of local taxation that do not appear in the annual returns. The sum voted by Parliament for the financial year 1878-79 was for England 2,873,675*l.*

“4. A summary of local rates is shown hereunder:—

TABLE 1.—*Rates.*

[000's omitted.]

Source of Revenue.	Year of the Return.	Number of separate Authorities Returned.	Receipt.				Total Expenditure.
			Rates.	Treasury Sub-ventions.	All other Sources, including Loans.	Total.	
			£	£	£	£	£
1. Poor rate, excluding precept rates paid thereout .....	1878-79	$\left\{ \begin{array}{c} 649 \\ \text{Unions} \\ 14,920 \\ \text{Parishes} \end{array} \right\}$	7,943,	575,	975,*	9,492,	8,722,
2. County and police rates...	'78-79	63	1,481,	565,	731,	2,777,	2,694,
3. Borough and town police rates, excluding school board rates .....	'78-79	240	1,267,	480,	2,255,	4,002,	3,513,
(See Table II)							
4. Highway rates.....	'77-78	$\left\{ \begin{array}{c} 418 \\ \text{Boards} \\ 5,952 \\ \text{Parishes} \end{array} \right\}$	1,797,	—	61,	1,858,	1,865,
5. Metropolitan local management rate, excluding precept rates paid thereout .....	'78-79	41	1,718,	—	576,	2,295,	2,291,
6. Metropolitan Board of Works, excluding coal and wine duties .....	'78	1	475,	10,	2,468,	2,954,	2,830,
(See Table II)							
7. Metropolitan police rate..	'78-79	1	538,	443,	148,	1,129,	1,093,
(See Table II)							
8. City of London police rate	'78	$\left\{ \begin{array}{c} 1 \\ \end{array} \right\}$	62,	—	31,	93,	102,
9. " ward "	'78		5,	—	—	5,	5,
10. Urban sanitary rates .....	'78-79	—	—	—	—	—	—
(a) Raised by town councils.....	—	221	6,098,	9,	8,014,	14,121,	14,286,
(b) Raised by other sanitary authorities (less amount paid to joint boards) .....	—	732	2,324,	15,	894,†	3,233,	2,758,
11. Rural sanitary rate .....	1878-79	577	201,	46,	219,	466,	446,
12. Port " .....	'78-79	36	‡[2,]	—	—	2,‡	6,
13. Lighting and watching rate.....	'78-79	205	41,	—	—	41,	46,
14. Sewers rate .....	'78-79	54	59,	—	19,	78,	79,
15. Drainage and embankment rate .....	'78-79	161	206,	—	68,	275,	290,
16. Burial board rate .....	'78-79	666	133,	—	283,	416,	376,
(See Table II)							
17. School board rate .....	'77-78	1,801	1,327,	3,	2,008,	3,338,	3,452,
(See Table II)							
18. Church rate.....	'78-79	149	11,	—	1,	12,	12,
Total of rates.....	—	26,888	25,686,	2,146,	18,752,	46,585,	44,866,

\* (1) The poor rate return, as summarised above, contains an amount of 592,169*l.* raised upon loan; and the rural sanitary rate 210,918*l.*

† Loans raised during the year are not shown in these accounts.

‡ Port sanitary authority.—The sum of 1,612*l.* is excluded from the total of "Rates" and of "Receipts," to avoid a duplicate reckoning of that sum.

“ 5. The returns of several of the authorities which appear in Table I, are also represented, so far as their revenues arise from tolls, dues, and rents, in the subjoined statement :—

TABLE 2.—*Tolls, Dues, Fees, and Rents.*

[000's omitted.]

Source of Revenue.	Year of the Return.	Number of separate Authorities Returned.	Receipt.				Total Expenditure.
			Tolls, Dues, Fees, and Rents.	Treasury Subventions.	All other Sources, including Loans.	Total.	
			£	£	£	£	£
19. Corporation of London ....	1878	} See Table I	288,	7,	751,	1,047,	1,061,
20. Corporation of London (Blackfriars and Clerkenwell improvements) }	'78		1,	—	34,	34,	30,
21. Borough tolls, dues, and rents ..... (See also Table I)	'78-79	„	525,	—	—	525,	525,
22. Metropolitan Board of Works ..... (See also Table I)	'78	„	62,	—	—	62,	62,
23. Urban sanitary authorities :—							
(a) Town councils .....	'78-79	„	291,	—	—	291,	291,
(b) Other sanitary authorities..... (See Table I)	'78-79	„	35,	—	—	35,	35,
24. Metropolitan police ..... (See Table I)	'78-79	„	26,	—	—	26,	26,
25. Turnpike trusts .....	'77	424	387,	—	31,	419,	426,
26. Markets and fair tolls ....	'78-79	17	25,	—	1,	27,	20,
27. Bridge and ferry „ ....	'78-79	37	62,	—	2,	64,	59,
28. Burial boards fees ..... (See also Table I)	'78-79	} See Table I	152,	—	—	152,	152,
29. School board fees ..... (See also Table I)	'77-78		284,	—	—	284,	284,
30. Light dues .....	'77-78	1	416,	—	5,	421,	289,
31. Pilotage „ .....	'78	60*	371,	—	2,	373,	373,
32. Harbour „ .....	'78-79	67	1,831,	—	1,730,	3,561,	3,212,
Total of tolls, dues, and rents	—	606	4,756,	7,	2,558,	7,321,	6,847,

\* Pilotage.—This is the total number of ports shown separately in the Parliamentary Paper for England; thirty are under the Trinity House of Deptford Strond, and sixteen under the Trinity House of Kingston-upon-Hull; the remainder are classed as “other ports.”

“ 6. The only local taxes distinguished in the annual returns, as derived from duties on consumable articles, are those levied by the city of London on coals, wine, and grain.

TABLE 3.—*Duties.*

Source of Revenue.	Year of the Return.	Number of Authorities.	Receipt.			Total Expenditure.
			Duties.	All other Sources, including Loans.	Total.	
33. City of London— Coal duty, at 9d. City's coal duty, at 4d..... Wine duty..... City's grain duty	1878	I	£ 293,530 130,458 10,111 22,484	£ 500	£ 457,083	£ 462,771*
Total of duties....	—	I	456,583	500	457,083	462,771

\* Inclusive of the drawback on coals, which was 70,396*l*.

“ 7. The loans outstanding against the local authorities at the close of the year, are set out hereunder:—

*Statement of Local Loans Outstanding at the Close of the Year 1878-79.*

Security and Authority.	Loans Outstanding at the Close of the Year.
I.—Rates chiefly—	£
Poor law .....	4,653,617
County .....	2,963,014
Borough .....	6,313,217
Highway .....	49,754
Metropolitan local management .....	2,273,498
„ Board of Works .....	13,126,259
Urban sanitary:	
(a) Raised by town councils .....	46,666,978
(b) „ other authority .....	10,067,472
Rural sanitary .....	642,617
Sewers commission .....	66,901
Drainage and embankment commission .....	1,541,294
Burial board .....	1,664,829
School „ .....	8,685,093
Church .....	40,259
Totals of I .....	98,754,802
II.—Tolls, dues, and rents, chiefly—	
City of London .....	5,186,000*
Turnpike trustees .....	1,009,998
Bridge and ferry commissions .....	213,646
Market and fair „ .....	86,980
Harbour commissions .....	23,165,561
Totals of II .....	29,662,185
III.—Duties exclusively—	
City of London grain duties .....	70,000
Grand totals .....	128,486,987

\* Inclusive of loans raised by the city on their coal duties.



"8.—The general summary for the year is subjoined:—

*Local Taxation Summary, 1878-79.*

Source of Revenue.	Amount of Local Impost.	Other Sources, including Treasury Grants and Ordinary Loans.	Total Receipt.	Total Expenditure.	Loans Outstanding at the Close of the respective Accounts.
Table	£	£	£	£	£
1.—Rates .....	25,685,896	20,898,736	46,584,632	44,865,780	98,754,802
2.—Tolls, dues, } and rents }	4,756,349	2,565,105	7,321,454	6,847,357	29,662,185
3.—Duties.....	456,583	500	457,083	462,771	70,000
Grand total.....	30,898,828	23,464,341	54,363,169	52,175,908	128,486,987

"9.—The valuation, *i.e.*, the 'Gross Estimated Rental' and the 'Rateable Value,' in force at Lady-day, 1878, for each union, concludes the volume for the year."

V.—*Ten Years' Telegraphy.*

THE following is taken from the *Times* of 26th October, 1880:—

"It is beginning to be apparent that Mr. Scudamore did not, after all, make so very bad a bargain for the country when he purchased the business of the old telegraph companies. Though the measure authorising the purchase was condemned as reckless and extravagant, the event has proved that the telegraph companies had really something valuable to sell—something which contained within itself a great capacity for development; and although it may be doubted whether the railway companies, or some of them, have not been overpaid, it should be borne in mind that the conciliation of a great and powerful opposition was worth something at the time when the negotiations were in progress. It is tolerably certain that, had the negotiations failed, a fusion of telegraph interests, leading to a powerful monopoly, would have taken place, and thus an important social and commercial reform might have been postponed indefinitely.

"One has only to read carefully the last report of the post-master general to see how vast and far reaching have been the results of this reform. When the telegraph companies disappeared from the scene, there was something fewer than 2,500 telegraph offices, of which nearly 500 were at railway stations, in the United Kingdom. At the close of the year ended the 31st March last there were close upon 4,000 post offices and more than 1,400 railway stations open for telegraph business, making the total number of telegraph offices within the United Kingdom 5,331. Large as has been the increase in the number of offices during the ten years since the post office acquired the control of the system, it would seem that a very large proportion of this increase must have occurred during the earlier years of State management. Attention

has but recently been directed to the fact that whereas in those earlier years England stood foremost among the European countries in this respect, she is now gradually dropping behind, and is, in fact, becoming so far stationary that only some 70 additional offices were opened for the transaction of telegraph business during the year ended in March last. How far Mr. Scudamore's original intention to make every money order office a telegraph office would have been in advance of public wants we do not know; but at least it would have helped to sooner abolish the odious 'guarantee' system of the old companies. On taking over the telegraphs, the post office inherited some 5,600 miles of telegraphic line, representing something like 49,000 miles of wire; and we now learn that these figures have increased to upwards of 23,000 miles of line, embracing more than 100,000 miles of wire. There remain to be added to this mileage of 'land line' upwards of 700 miles of submarine cables, which compare with less than 140 miles ten years ago. 'Justice to Ireland' has, no doubt, had something to do with this very considerable increase of submarine cables, although the post office has contributed a good deal towards perfecting communication with the Channel Islands and Scilly, as well as with Orkney and Shetland. The number of instruments in use by the telegraph companies was 2,200, exclusive of those worked on private wires. This number has increased to 8,150 in use by the post office, and of these upwards of 170 are on the Wheatstone automatic principle as compared with only four of a similar improved description worked by the old companies. It was feared, and, indeed, openly alleged as an argument why the telegraphs should not be handed over to the State, that the result would be to stifle invention, and to arrest progress so far as electrical science was concerned. The post office may, or may not, have encouraged invention at home here in England; but it certainly has not been slow to adopt the inventions of the New World, as witness the large number—nearly 400—of instruments worked on the duplex and quadruplex system, and the substitution of the 'Morse sounder' for the once useful, but now rather out-of-date 'Morse printer.' The sounder may be said to be the telephone of symbolic telegraphy, and is both cheaper to make, to work, and to maintain than the printing machine of the early days of post office telegraphy. The total number of telegraphists employed by the companies was something over 2,500, of whom less than 500 were women; and to this number fall to be added nearly 1,500 messenger boys, making a total of just under 4,000 persons. The post office, it appears, employs upwards of 5,600 telegraphists, of whom more than 1,500 are women, while the number of messenger boys exceeds 4,600. In all, considerably more than 10,000 persons are employed in the telegraph work of the United Kingdom, not reckoning the large number of 'uncovenanted' persons of the telegraphist and messenger class employed at the smaller post offices throughout the country.

"A valuable adjunct to the telegraph is to be found in the pneumatic tube, which has been largely extended in recent years. It might have been inferred, from a discussion which took place in Parliament towards the close of the session, that this method of

communication was comparatively new and but little understood in this country, and required study at a great distance from home in order to make its advantages understood and appreciated. But the postmaster general has reassured us on this point, for it appears that whereas in 1870 the telegraph companies only used the system in Manchester and Birmingham, besides London, and only possessed altogether some 4,800 yards of tube, the post office has extended it to four other principal towns, and has a length of tube at its command exactly ten times greater than that existing ten years ago. London alone has upwards of 37,000 yards, or more than 21 miles, of leaden pipes buried beneath its streets, through which open telegrams are being blown or sucked at all hours of the day; the system should be extended so as to include the transmission of closed communications. What is wanted in London is what they already enjoy in Paris and Berlin—a pneumatic post, or, as they call it in Germany, a ‘blow post’ which would carry express letters from one end of the metropolis to the other, and deliver them, say, within half-an-hour, for a charge of 6*d.* now and less by-and-by. This, of course, is not a telegraphic operation at all—a pneumatic tube applied to this purpose being an adjunct rather of the mail cart than of the telegraph wire. But whether in the shape of a ‘closed telegram’ (*télégramme fermée*), as in Paris, or the ‘blow-post,’ as in Berlin, it may be hoped that Londoners will soon enjoy the means of sending messages about mechanically, within the four-mile radius at least, and that in time pneumatic despatch boxes will be as plentiful in the streets as pillar-posts. So far as we can gather, they do not manage this matter either in Paris or Berlin so well as it might be managed in London; and yet, as we showed a few months ago, the system is very considerably used in both cities. The conditions abroad are, no doubt, different from and less favourable than those obtaining in London, and our immensely larger population not only indicates the greater necessity, but the greater chances of success.

“Having thus reviewed the means of telegraphic communication provided by the post office, as compared with that bequeathed to it by the telegraph companies, let us look for a moment at the results achieved. Between them, the telegraph and railway companies forwarded some  $6\frac{1}{2}$  millions of messages annually ten years ago. Last year the post office forwarded more than  $26\frac{1}{2}$  millions, so that the business has increased fourfold. The total number of provincial telegrams originating in England and Wales was something under  $12\frac{1}{2}$  millions, while the total number originating in London alone approached 10 millions. Scotland originated rather more than 2,700,000 messages, and Ireland something less than 1,600,000, these figures comparing with 1,080,189 and 606,285 respectively ten years ago. The total general increase in the year 1879-80 over that of 1878-79 was upwards of 2 millions of messages, notwithstanding that there was a decrease of nearly 700,000 in the months of June and July, 1879, and March, 1880. In November, 1879, there were nearly 400,000, and in February, 1880, nearly 430,000, more messages sent than in the corresponding months of the previous year; and altogether there would seem to



be a corresponding activity in this branch of the national business to that existing in the post office proper. It is not so easy to compare the financial results of the ten years' working under the post office with those achieved by the companies, because there are no exact *data* as to what the telegraph revenue was prior to 1870. But it seems probable that the combined receipts of the companies did not greatly exceed, if they at all exceeded, half-a-million sterling, and we find that in the first complete year of the postal administration of the system the total revenue was a trifle under 700,000*l.* Last year it was 1,452,489*l.*, or more than double, and of this 1,111,547*l.* went in working expenses, leaving a net revenue of 340,942*l.*, or an increase of 83,442*l.* on the net revenue of the preceding year, not reckoning more than 15,000*l.* worth of work performed for other Government departments without payment. It has been estimated that the profit of the telegraphic service for the current year will be 450,000*l.*, which will yield something like 4½ per cent. on the entire capital expended in the service. If it be borne in mind how long the post office revenue was in recovering itself after the introduction of the penny post, notwithstanding that Sir Rowland Hill had no 'capital account' to contend with, this result of shilling telegraphy, brought about in the brief space of ten years, must be admitted to be satisfactory in the extreme, and such as even the sanguine spirit who conceived the enterprise could hardly have hoped for. The public now ask for a cheaper service, and in so doing they but point the way to increased prosperity. Mr. Fawcett has been placed at the head of the post office at a time when one branch of the service at least requires 'moving on.' He has already practically intimated his concurrence in the reasonableness of the demand for telegraphic reform, and only the problematical result of a decreased revenue has hitherto deterred him from taking a bold step in this direction."

## VI.—*The Population of the Earth.*

WE extract the following from the *Times* of 21st September, 1880:—

"From an early copy of the sixth issue of Behm and Wagner's well-known publication, *Die Bevölkerung der Erde*, we are able to gather what is the present condition of the earth's surface, so far as its area and population are concerned. This now indispensable publication is issued at intervals of from eighteen months to two years, and is the great fountain from which all other statistical works are supplied, so far as relates to the subjects of which Herren Behm and Wagner treat. Every column of this publication bears evidence of the utmost care and discrimination, as well as of tireless research. The difficulties of obtaining statistics of several States are known only to those whose duty it is to do their best to obtain them. So great, indeed, are these difficulties in some instances, that the able compilers of the *Bevölkerung* have actually to manufacture their statistics for themselves. This may seem very doubtful praise to some of our readers, but the process is the only one that



can be adopted in some instances, if we are to have trustworthy statistics at all. For instance, in some of the South American States and elsewhere the official statements of areas are so varied and untrustworthy, that the editors are compelled to make estimates themselves in the most trustworthy maps that can be obtained, and after a method that demands great delicacy. So also where there are either no, or inconsistent, or only partial, statistics of population, Herren Behm and Wagner rightly deem it their duty as editors to complete these statistics by estimation, after the most trustworthy methods at their command. Too much credit, indeed, cannot be given to these two eminent geographers for the thoroughness and fulness with which at regular intervals they edit the statistics of the world in respect of two such important items as the area and population of its various States and divisions. Dr. Behm, since the last issue of the *Bevölkerung*, has succeeded to the position long occupied by the late Dr. Petermann in the eminent geographical house at Perthes, of Gotha; while Dr. Wagner has been transferred from the geographical chair at Königsberg University to the corresponding chair in the University of Gottingen. Both of them have done and are doing much to sustain the high position to which geographical science has attained in Germany.

“Since the last publication censuses of several countries have been either taken or published, the results of which the editors have been able to utilise. These are:—Spain, 1877; Portugal, 1878; Greece, 1879; Bosnia and Herzegovina, 1879; New Zealand, 1878; New Caledonia, Marquesas Islands, and Tahiti, 1876; Tuamotu, Archipelago and the Sandwich Islands, 1878; French Senegambiae, 1878; Canary Islands, 1877; San Salvador, 1878; some of the West India Islands and French Guiana, 1877; and Peru, 1876. The general results for Denmark and Lichtenstein have also been obtained. Although some of the results of the United States census of this year have been made public, the editors have wisely refrained from adopting them, awaiting trustworthy official statements. In view of the recent rumours of foul play, this must be considered prudent. As they state in their preface, we are on the eve of a great census period. Austria and Germany, as well as the United States, take their census this year, and next year our own census is due; so that within the next two years we may look for a fresh issue of the *Bevölkerung*. For many of the States which have taken no census since the last issue the editors have been able to avail themselves of official estimates, which in many cases have almost the value of a census.

“Herr Nessmann, of Hamburg, contributes an interesting prefatory essay on the progress of population statistics, and Professor Wagner a table of all the censuses that have been taken in the various countries up to the beginning of 1880. The latter also on a map with various shades of red shows at a glance the countries in which actual censuses have been taken, the shades of colour showing their frequency. Countries which have had only one regular census are all the South American States except Chili and India; those that had none before 1853 are Austria, Italy, Spain, and Portugal, Algeria, the Australian and South African colonies, and several smaller places. Britain, Germany, France,

Norway and Sweden, Denmark, Greece, and the United States had censuses before 1853.

"According, then, to the latest data, as given in the new issue of Behm and Wagner's work, Europe has a population of 315,929,000; Asia, 834,707,000; Africa, 205,679,000; America, 95,495,500; Australia and Polynesia, 4,031,000; Polar regions, 82,000; giving a total of 1,455,923,500, showing an increase since the last publication, nineteen months ago, of 16,778,200.

"The following are the populations of the various countries of Europe, with the dates to which the figures refer:—Germany, 1875, 42,727,360, estimate end of 1877, 43,943,834; Austria, end of 1879, estimate, 22,176,745; Hungary, 1876, 15,506,715; Austria-Hungary, 1876, 37,342,000, estimate for end of 1879, 38,000,000; Switzerland, 1878, estimate 2,792,264; Belgium, estimate 1878, 5,476,668; Netherlands, estimate 1878, 3,981,887; Denmark, 1878, 2,070,400; Sweden, estimate 1878, 4,531,863; Norway, census 1876, 1,818,853; Great Britain and Ireland, estimate 1879, 34,517,000; France, census 1876, 36,905,788; Spain, census 1877, 16,625,860, including the Canaries (280,388), the Balearic Islands (289,035), and Ceuta and other places in North Africa (12,179); Portugal, census 1878, 4,745,124, including the Azores (264,352) and Madeira (132,221); Italy, estimate 1878, 28,209,620. A census of Greece was taken in 1879, which gave a total area of 51,860 square kilomètres and a population of 1,679,775. This population, for reasons stated in the official publication, was considered too small, and 1,702,356 is given as the correct figure. Of course the editors have not felt themselves justified in giving any estimate of the proposed additions to Greece, as they deal only with accomplished facts. It is hoped that by the date of the next issue they may have a different tale to tell.

"In dealing with Roumania and the countries of the Balkan Peninsula, the editors have no easy task to perform in putting definitely the numerical results of the treaty of Berlin, so far as these have been accomplished. They very rightly give the chief heads of this treaty before attempting to interpret it. The utterly unsatisfactory character of most of the statistics relating to this region is notorious, and in working the subject out the editors enter into elaborate comparisons of statistics from various sources; we can only here give the results. So far as the areas of the countries are concerned, the editors in most instances made a careful planimetric calculation for themselves from the Austrian staff map, and probably their results are, on the whole, the most trustworthy to be obtained until we have actual surveys of the region. With regard to Roumania, after taking account of the retrocession of Bessarabia to Russia, and the cession by the latter of the Dobrudja, the editors found that the present area of Roumania is 129,947 square kilomètres, and the population 5,376,000. The latter figure is based on rather old data, but there is nothing more trustworthy until the Roumanian Government has completed the results of the census. The area of Servia, after its recent addition of 11,097 square kilomètres, is given as 48,657 square kilomètres, and the population in 1880, 1,353,890. Though the latter figure is furnished by the able Servian statistician, M. Jakschitsch, it seems to be less than it ought really to be by

235,000. The treaty area of Montenegro is given as 9,433 square kilomètres, and the population 280,000. With European Turkey the difficulties of the editors culminate, their main resource being to strike a balance of probabilities; the details are much too complicated to give here, and we must content ourselves with the results. The following table, then, gives the results of the calculation of Herren Behm and Wagner as to the area and population of the immediate possessions and the dependencies of European Turkey:—

	Area.	Population.
	Square kilos.	
Immediate possessions .....	179,475	4,790,000
Eastern Roumelia .....	35,387	923,179
Bulgaria .....	63,865	1,965,474
Bosnia, Herzegovina, and Novi Bazar ....	60,484	1,187,879
	339,211	8,866,500

“Then, taking the Turkish possessions in Asia, we have:—

	Area.	Population.
	Square kilos.	
Immediate possessions .....	1,889,055	16,133,000
Cyprus.....	9,601	150,000
Tributary principedom of Samos .....	550	37,000
	1,899,206	16,320,000

The entire possessions, then, of Turkey in Europe and Asia have an area of 2,238,417 square kilomètres, and a population of 25,180,000.

“Turning now to Russia, we find the statistics very mixed, some being comparatively recent and trustworthy; others, no one knows how old, and by no means reliable. There are, indeed, very recent figures for most of the governments and district towns, but they are seldom the results of an accurate census. Such a census is, we believe, in progress; meantime we must content ourselves with the very careful reduction of Herren Behm and Wagner. For Poland, we ought to see that we have perfectly trustworthy statistics up to 1877:—

	Area.	Population.
	Square versts.	
European Russia (1870) .....	4,313,800·6	65,864,910
Poland (1872) .....	111,875·4	6,528,017
Addition to Bessarabia (1878).....	8,149·2	127,000 (?)
Finland (1877) .....	328,233·2	1,968,626
Caucasus (1873-76) .....	385,887	5,391,744
Increase in Armenia (1878) .....	22,643·7	236,600 (?)
Siberia (1870) .....	10,979,687·3	3,440,362
Central Asia .....	2,920,524·2	4,401,876
Caspian Sea .....	386,125·2	—
Russian dominions.....	19,456,925·8	87,959,000



Until we know the final results of the Kuldja treaty with China, there is, of course, some uncertainty about the Central Asian figures. As to the area of the still independent region between Khiva, Bokhara, Afghanistan, Persia, and the Russian Transcaspian district, the editors give 206,500 square kilomètres, and the population, after Vambéry, 450,000. The only stock that have up to the present moment retained their entire independence are the Tekkes, of whom 200,000 are Akhal-Tekkes, frequenting the oases at the foot of the Kuren-Dagh; the remainder 100,000 have their seat to the east, at present in Merv. Of Khiva, the area is given as 57,800 square kilomètres, and the population 700,000. In a footnote the editors give, on the authority of Vambéry, they state by mistake, correctly on the authority of Mr. A. H. Keane, in *Nature*, the total number of people of the Turcoman stock in Central Asia, 1,100,000.

“Proceeding now to the other countries of Asia, we find Bokhara, with the adjacent district of Karategin, Schignan, Roschan, &c., has an area of 239,000 square kilomètres, and a population of 2,130,000. The total area of Arabia is given as 3,156,600 square kilomètres, and the population 5 millions; of this, 2,507,390 square kilomètres, with a population of 3,700,000, are still independent of Turkey. There are quite recent estimates for one or two districts of Persia; but the editors still give the area as 1,647,070 square kilomètres and the population 7 millions. The district of Kotur, ceded to Persia by the Berlin treaty, has an area of 1,125 square kilomètres and a population of 8,000. The editors wisely refrain from giving numerical effect to the Gandamak treaty in Afghanistan, the area of which they still set down as 721,664 square kilomètres and the population as 4 millions. At the same time they give the detailed lists of the various tribes and stocks published in *Nature* by Mr. Keane, as the result of careful and independent research, and yielding as the estimate of population the much higher figure of 6,145,000. Kafiristan has an area of 51,687 square kilomètres and a population of a million, and Beloochistan 276,515 square kilomètres and 350,000 inhabitants. China, with all its dependencies, has an area of 11,813,750 square kilomètres and a population of 434,626,500. The latter figure is, however, very uncertain; some authorities maintain it is much too high, and others much too low; the former are more likely to be right. Hongkong in 1876 had an area of 83 square kilomètres and a population of 139,144; Macao (1879) 11.75 square kilomètres and 77,230 inhabitants. Japan, according to official statistics of 1878, had an area of 379,711 square kilomètres and a population of 34,338,504. For India many of the figures are more recent than those given in the last issue of the *Bevölkerung*. The total area of British possessions in India, including Burmah, is given as 899,341 square miles, and of tributary States 557,903 square miles; population of former, 191,095,445; of latter, 49,203,053; total British possessions, 1,457,244 square miles, population 240,298,500. The French possessions in India have an area of 508½ square kilomètres and a population (1877) of 280,381; the Portuguese an area of 3,855 square kilomètres and a population of 444,987. Ceylon has an area of 24,702 square miles and a population in 1877 of 2,755,557. The



following table shows the areas and populations of the various subdivisions of the Indo-Chinese peninsula, according to the latest attainable data of any value:—

	Area.	Population.
	Square kilos.	
British Burmah .....	229,351	2,747,148
Manipur .....	19,675	126,000
Tribes east and south of Assam .....	65,500	200,000
Independent Burmah .....	457,000	4,000,000
Siam .....	726,850	5,750,000
Anam .....	440,500	21,000,000
French Cochin-China.....	59,457	1,600,000
Cambodia .....	83,861	890,000
Independent Malacca.....	81,500	300,000
Straits Settlements.....	3,472	350,000
	2,167,440	36,963,000

“The East India Islands are subdivided thus:—

	Area.	Population.
	Square kilos.	
Andamans .....	6,497	14,500
Nicobars .....	1,772	5,500
Samoa Islands, &c. ....	1,698,757	27,343,000
Philippines .....	295,585	7,450,000
		34,813,000

“Professor Wagner animadvert with good reason on the careless manner in which the statistics for the Dutch East Indies are published. There is no want of such statistics, but for want of scientific editors and proper arrangement they are almost practically useless. Indeed, the most varied and inconsistent figures are given in official publications in these islands, and this want of method gives the geographer and statistician a feeling of despair. Herr Wagner, with infinite trouble, has sought to reduce this chaos to order, and this part of the work will, no doubt, be regarded as the best authority on the subject we possess.

“Turning to Australia and Polynesia, the editors notice the recent annexation to Queensland of several islands in Torres Straits, and give the population of the colonies as follows for 1878:—New South Wales, 693,743; Victoria, 879,442; South Australia, 248,795; Northern territory (1879), 3,265; Queensland, 210,510; West Australia, 28,166; Tasmania, 109,947; New Zealand (end of 1878), 476,642; including Maoris, which is considerably larger than the census figure of March of the same year, 414,412. From careful estimates the area of New Guinea is set down as 785,362 square kilometres, or, with the neighbouring islands, 807,956 square kilo-

mètres, and the population 500,000. The following table relates to the Oceanic islands:—

	Area.	Population.
	Square kilos.	
Melanesia .....	145,855	606,800
Polynesia.....	9,791	130,400
Sandwich Islands .....	17,008	58,000
Micronesia .....	3,530	84,650
	176,184	879,850

“As the result of a new estimate of the area of Africa, the editors give 29,283,390 square kilomètres. This area is, according to Dr. Nachtigal, so far as productiveness is concerned, divided as follows:—Forest and cultivable land, 6,376,725 square kilomètres; savannas and light woods, 6,235,378; bush, 1,572,431; steppe, 4,269,027; desert, 10,659,133, of which the Sahara occupies upwards of 9 million kilomètres, including many oases and cultivated patches. The area and population of Africa are divided among the chief countries and regions as follows:—

	Area.	Population.
	Square kilos.	
Morocco, including Swat, &c. ....	812,332	7,829,000
Algeria .....	667,065	2,867,626
Tunis .....	116,348	2,100,000
Tripoli, &c. ....	1,033,349	1,010,000
Sahara .....	6,180,426	2,850,000
Egypt and dependencies .....	2,986,915	17,420,000
Central Soudan .....	1,714,983	31,770,000
West Soudan and Upper Guinea.....	1,993,046	43,600,000
Abyssinia .....	333,279	3,000,000
Harar, Galli, &c. ....	1,897,038	15,500,000
North Equatorial regions .....	2,254,980	27,000,000
South .....	1,717,900	20,000,000
Independent South Africa .....	1,500,000	13,286,350
Portuguese East Africa .....	991,150	1,000,000
” West ” .....	78,470*	9,000,000
Orange Free State .....	111,497	75,000
British South Africa.....	968,418	1,966,000
African Islands .....	626,054	3,892,400

\* Angola.

For some of these figures we ought to say that Behm and Wagner are not responsible, as we have put them together from various data, not always complete, furnished by them; the areas especially are much too small, as for some regions no estimates are given, and the lakes are not included.

“Coming to America, we have British North America, with a total area (including Polar lands) of 3,248,078 square miles, and a population of 3,839,470; Bermudas, 19½ square miles, and, in 1838,

13,812 inhabitants; French possessions in North America, 90 square miles, population (1877), 5,338. For the United States the new census returns of the year were not available; but from a careful calculation the editors think that for 1880 a population of 48,500,000 is not too much to expect, exclusive of 300,000 Indians; the area of the States is given as 3,603,884 square miles. The area of Mexico is given as 1,921,240 square kilomètres, and the present population as 9,485,600. Central American States, 547,308 square kilomètres, and 2,759,200 population; West Indies, 244,478 square kilomètres, 4,412,700 population; Guiana, 461,977 square kilomètres, 345,800 population; Venezuela, 1,137,615 square kilomètres, 1,784,197 population; United States of Colombia, 837,000 square kilomètres, 3 millions of population; Ecuador, 643,295 square kilomètres, with population (1878) 1,146,000; Peru, 1,119,941 square kilomètres, with population (1876), 3,050,000—this is inclusive of the recent addition of the Bolivian littoral; Chili, 321,462 square kilomètres, population (1878), 2,400,000; Argentine Republic, including Patagonia, 3,051,706 population (1879), probably 2,400,000; Uruguay, 186,920 square kilomètres, population (1877), 440,000; Paraguay, 238,920 square kilomètres, with population (1876), 293,844; Brazil, 8,337,218 square kilomètres, population 11,108,291; Falkland Islands, area according to official statement, 6,500 square miles, but more probably according to Behm and Wagner, 4,840 square miles, population (1878), 1,394. As the editors greatly distrust the official estimates of area in the South American States, they give the result of a new planimetric measurement by Dr. Wisotzki, of Königsberg; this gives the total area, including islands, as 17,752,303 square kilomètres, nearly 8 million kilomètres less than the official statistics make it.

“Finally we have the statistics of the Polar regions. The total area of the regions on or around the Arctic circle is given as 3,859,400, the only regularly inhabited lands, so far as we know, being Iceland and Greenland, the former with 72,000, and the latter 10,000 inhabitants. No doubt there are a few wanderers in the Arctic regions of North America, but we have no means of ascertaining their number. The South Polar regions are credited with an area of 660,000 square kilomètres, in which, so far as known, there are no inhabitants.

“Such, then, is a condensed *résumé* of the valuable collection of statistics contained in the new issue of the *Bevölkerung der Erde*, which may be taken as the most trustworthy statement we have as to the present area and population of our globe.”

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VII.—*Statistics of Australasian Colonies.*

THE following has been received from the Registrar-General of for the year 1878, to be found at pp. 858 and 859 of the *Journal*

AUSTRALASIAN COLONIES.—*Statistical Return showing the Relative Positions and*

	Name of Colony.			
	New South Wales.	Victoria.	South Australia.	Queensland.
Area in square miles .....	310,937½	88,198	380,070	669,520
Estimated mean population } of 1879 .....	714,012	888,500	255,087	214,180
Revenue of 1879.....	4,475,059 <i>l.</i>	4,621,520 <sup>1</sup>	1,662,498 <i>l.</i>	1,461,824 <i>l.</i>
Proportion of revenue of } 1879, raised by taxation .....	1,272,721 <i>l.</i>	1,730,088	526,366 <i>l.</i>	631,289 <i>l.</i>
Rate of taxation per head } of population .....	1 <i>l.</i> 15 <i>s.</i> 7¾ <i>d.</i>	1 <i>l.</i> 19 <i>s.</i> 4¾ <i>d.</i> <sup>2</sup>	2 <i>l.</i> 1 <i>s.</i> 3 <i>d.</i>	2 <i>l.</i> 18 <i>s.</i> 11¼ <i>d.</i>
Value of imports for 1879.....	14,198,847 <i>l.</i>	15,035,538 <i>l.</i>	5,014,150 <i>l.</i>	3,080,889 <i>l.</i>
Value of imports per head } of the population .....	19 <i>l.</i> 17 <i>s.</i> 8½ <i>d.</i>	16 <i>l.</i> 18 <i>s.</i> 5¼ <i>d.</i>	19 <i>l.</i> 13 <i>s.</i> 1½ <i>d.</i>	14 <i>l.</i> 7 <i>s.</i> 8½ <i>d.</i>
Value of exports for 1879.....	13,086,819 <i>l.</i>	12,454,170 <i>l.</i>	4,762,727 <i>l.</i>	3,434,034 <i>l.</i>
Value of exports per head } of the population .....	18 <i>l.</i> 6 <i>s.</i> 6¼ <i>d.</i>	14 <i>l.</i> — <i>s.</i> 4 <i>d.</i>	18 <i>l.</i> 13 <i>s.</i> 5 <i>d.</i>	16 <i>l.</i> — <i>s.</i> 8 <i>d.</i>
Total value of trade, im- } ports and exports .....	27,285,666 <i>l.</i>	27,489,708 <i>l.</i>	9,776,877 <i>l.</i>	6,514,923 <i>l.</i>
Value of trade per head of } the population .....	38 <i>l.</i> 4 <i>s.</i> 3¼ <i>d.</i>	30 <i>l.</i> 18 <i>s.</i> 9¼ <i>d.</i>	38 <i>l.</i> 6 <i>s.</i> 6½ <i>d.</i>	30 <i>l.</i> 8 <i>s.</i> 4½ <i>d.</i>
Miles of railway open, 31st } December, 1879 .....	736	1,125	559	503
Miles of railway in course of } construction, 31 Dec., 1879 .....	286	74½	252¼	305
Miles of telegraph lines } open, 31st December, 1879 .....	7,517½	3,155	4,393½	5,871
Miles of telegraph wire open, } 31st December, 1879 .....	12,426	5,736	5,934	7,891
Miles of telegraph in course of } construction, 31st Dec., 1879 .....				
Length of lines (miles) .....	497¾	23	850	—
“ wire ( “ ) .....	497¾	47	1,010	—
Number of acres under crop } in 1879 .....	635,641	1,688,275	2,271,058	101,052
Number of horses in 1879 ....	360,038	216,710	130,052	163,083
“ cattle “ .....	2,914,210	1,129,358	266,217	2,800,633
“ sheep “ .....	29,043,392	8,651,775	6,140,396	6,065,034
“ pigs “ .....	256,026	144,733	90,548	64,686
Estimated population on } 31st December, 1879.....	734,282	899,333	259,287	217,851
Public debt on 31st Dec., 1879 .....	14,937,419 <i>l.</i>	20,050,753 <i>l.</i>	6,605,750 <i>l.</i>	10,196,150 <i>l.</i>
Rate of indebtedness per } head of population.....	20 <i>l.</i> 6 <i>s.</i> 10¼ <i>d.</i>	22 <i>l.</i> 5 <i>s.</i> 10¾ <i>d.</i>	25 <i>l.</i> 9 <i>s.</i> 6¼ <i>d.</i>	46 <i>l.</i> 16 <i>s.</i> —¾ <i>d.</i>

<sup>1</sup> For the financial year ended 30th June, 1879.

<sup>2</sup> This rate has been calculated according to the mean population of the financial year ended

<sup>3</sup> Population on 31st December.

<sup>4</sup> Includes 1,405,018 acres after having been broken up, including such as in hay, but exclusive

<sup>5</sup> According to the returns of March, 1878.



New South Wales, and is given with reference to a similar return for last year, vol. xlii.

*Aggregate Importance of the Australasian Colonies, at the close of the Year 1879.*

Name of Colony.					
Tasmania.	Western Australia.	Total.	New Zealand.	Total for Australasian Colonies.	
26,215	1,000,000	2,474,940½	105,342	2,580,282½	Area in square miles
111,208	28,668³	2,211,655	448,124	2,659,779	Estimated mean population of 1879
375,367 <sup>l</sup> .	196,315 <sup>l</sup> .	12,792,583 <sup>l</sup> .	3,134,905 <sup>l</sup> .	15,927,488 <sup>l</sup> .	Revenue of 1879
236,404 <sup>l</sup> .	88,330 <sup>l</sup> .	4,485,198 <sup>l</sup> .	1,441,838 <sup>l</sup> .	5,927,036 <sup>l</sup> .	Proportion of revenue of 1879, raised by taxation
2 <sup>l</sup> . 2 <sup>s</sup> . 6 <sup>d</sup> .	3 <sup>l</sup> . 1 <sup>s</sup> . 7¼ <sup>d</sup> .	2 <sup>l</sup> . — <sup>s</sup> . 8¾ <sup>d</sup> .	3 <sup>l</sup> . 4 <sup>s</sup> . 4 <sup>d</sup> .	2 <sup>l</sup> . 4 <sup>s</sup> . 8¾ <sup>d</sup> .	Rate of taxation per head of population
1,267,475 <sup>l</sup> .	407,299 <sup>l</sup> .	39,004,198 <sup>l</sup> .	8,374,585 <sup>l</sup> .	47,378,783 <sup>l</sup> .	Value of imports for 1879
11 <sup>l</sup> . 7 <sup>s</sup> . 11¼ <sup>d</sup> .	14 <sup>l</sup> . 4 <sup>s</sup> . 1¾ <sup>d</sup> .	17 <sup>l</sup> . 12 <sup>s</sup> . 8½ <sup>d</sup> .	18 <sup>l</sup> . 13 <sup>s</sup> . 9 <sup>d</sup> .	17 <sup>l</sup> . 16 <sup>s</sup> . 3 <sup>d</sup> .	Value of imports per head of the population
1,301,097 <sup>l</sup> .	494,883 <sup>l</sup> .	35,533,730 <sup>l</sup> .	5,743,126 <sup>l</sup> .	41,276,856 <sup>l</sup> .	Value of exports for 1879
11 <sup>l</sup> . 13 <sup>s</sup> . 11¾ <sup>d</sup> .	17 <sup>l</sup> . 5 <sup>s</sup> . 3 <sup>d</sup> .	16 <sup>l</sup> . 18 <sup>s</sup> . 3¾ <sup>d</sup> .	12 <sup>l</sup> . 16 <sup>s</sup> . 3¾ <sup>d</sup> .	15 <sup>l</sup> . 10 <sup>s</sup> . 4¾ <sup>d</sup> .	Value of exports per head of the population
2,568,572 <sup>l</sup> .	902,182 <sup>l</sup> .	74,537,928 <sup>l</sup> .	14,117,711 <sup>l</sup> .	88,655,639 <sup>l</sup> .	Total value of trade, imports and exports
23 <sup>l</sup> . 1 <sup>s</sup> . 11 <sup>d</sup> .	31 <sup>l</sup> . 9 <sup>s</sup> . 4¾ <sup>d</sup> .	33 <sup>l</sup> . 14 <sup>s</sup> . —¼ <sup>d</sup> .	31 <sup>l</sup> . 10 <sup>s</sup> . —¾ <sup>d</sup> .	33 <sup>l</sup> . 6 <sup>s</sup> . 7½ <sup>d</sup> .	Value of trade per head of the population
172½	72	3,167½	1,171	4,338½	Miles of railway open, 31st December, 1879
—	19¾	937¼	—	937¼	Miles of railway in course of construction, 31 Dec., 1879
731	1,568¾	23,236¾	3,605	26,841¾	Miles of telegraph lines open, 31st Dec., 1879
949	1,580¾	34,516¾	9,300	43,816¾	Miles of telegraph wire open, 31st December, 1879
14	3½	1,388¼	—	1,388¼	Miles of telegraph in course of construction, 31st Dec., 1879
14	7	1,575¾	—	1,575¾	Length of lines (miles)
156,184	65,491¾	4,917,701¾	2,218,782¼	7,136,483¾	Number of acres under crop in 1879
24,578	32,411	926,872	137,768⁵	1,064,640	Number of horses in 1879
129,091	60,617	7,300,126	578,430⁵	7,878,556	„ cattle „
1,834,441	1,109,860	52,844,898	13,069,338⁵	65,914,236	„ sheep „
38,312	20,397	614,702	207,337⁵	822,039	„ pigs „
112,469	28,668	2,251,890	463,729	2,715,619	Estimated population on 31st December, 1879
1,786,800 <sup>l</sup> .	361,000 <sup>l</sup> .	53,937,872 <sup>l</sup> .	23,958,311 <sup>l</sup> .	77,896,183 <sup>l</sup> .	Public debt on 31st Dec., 1879
15 <sup>l</sup> . 17 <sup>s</sup> . 8¾ <sup>d</sup> .	12 <sup>l</sup> . 11 <sup>s</sup> . 10 <sup>d</sup> .	23 <sup>l</sup> . 19 <sup>s</sup> . —½ <sup>d</sup> .	51 <sup>l</sup> . 13 <sup>s</sup> . 3¼ <sup>d</sup> .	28 <sup>l</sup> . 13 <sup>s</sup> . 8¼ <sup>d</sup> .	Rate of indebtedness per head of population

30th June, 1879 (878,243).

of 1,936,281 acres of grass-sown lands which had not previously been broken up.

VIII.—*Agricultural Distress and Bills of Sale.*

WE extract the following from the *Statist* of 20th November, 1880:—

“Recent legislation has had the effect of providing statistical materials for the illustration of a description of business respecting which very little is generally known, although a considerable portion of the community, unfortunately for themselves, are interested. We refer to the Acts for the registration of ‘Bills of Sale.’ By these Acts every ‘Bill of Sale,’ which is virtually a mortgage upon moveable effects, has to be registered, so that the extent to which these mortgages are granted can now be appreciated. The effect of the legislation, combined, perhaps, with the great depression of trade, the absence of previous statistics making it impossible to assign due weight to each cause, was to increase the annual number of bills of sales granted in England and Wales from about 20,000 in 1878, to 50,000 in 1879, and 55,000 in the year ending 1st October, 1880, which covers three months in 1879. Whatever may have been the cause of the increase, there can be no doubt at any rate of the annual number now granted in England and Wales exceeding 50,000, which shows a rather extensive use of this form of borrowing throughout the country. The amounts involved are usually small, but the fact that 50,000 persons of the lower middle class have annually to borrow in that way is itself a sorrowful fact. To a great extent the lenders appear to be a professional class—obviously money-lenders—and not improbably the bill of sale is often the climax of a small loan which has gone on rapidly accumulating, until the victim is unable to shake off the money lender’s grip. According to the law reports, instances of severe oppression occur, the clauses of the bills of sale being onerous and oppressive, and the object contemplated by the lenders being rather the plunder of the grantee through his failure to comply with the technical stipulation of the bill of sale than the real security of the advance. It is not pleasant to reflect that there are 50,000 documents of this kind, adapted to be used, and frequently used, by the money lender as an instrument of torture, annually granted in the country. The distress implied must be very great indeed.

“Some tables which we subjoin will throw further light on the matter. These refer to the bills of sale granted by one class alone in the year ended 1st October, 1880, viz., farmers, whose position at the present time is peculiarly interesting, owing to the long depression of agriculture. The great fact which we find (see Table 1) is that farmers in the course of the year named gave no fewer than 3,210 bills of sale for an aggregate sum of 567,560*l.* Compared with the aggregate number of farmers, and the aggregate farming capital, the proportions are not really large. There are half-a-million occupiers of land in England and Wales, and their capital must run into hundreds of millions. But when it is con-

sidered that these bills of sale represent only one mode of borrowing by the farming class, and that the borrowing of those who are poorest, or under the greatest pressure, we cannot doubt that they show a considerable amount of agricultural distress. The amounts for which most of the bills are granted are very small indeed. We make the following list:—

	Number of Bills.
For amounts under 20 <i>l.</i> .....	314
„ 21 <i>l.</i> to 50 <i>l.</i> .....	861
„ 51 <i>l.</i> „ 100 <i>l.</i> .....	694
„ 101 <i>l.</i> „ 200 <i>l.</i> .....	547
„ 201 <i>l.</i> „ 500 <i>l.</i> .....	507
„ 501 <i>l.</i> „ 1,000 <i>l.</i> .....	125
„ over 1,000 <i>l.</i> .....	74
„ not specified .....	88
Total .....	<u>3,210</u>

“Thus nearly 2,000 out of the 3,210 are for amounts under 100*l.* which reduces greatly the number granted, by what would be considered farmers in a large or even a moderate way of business. The description of the grantor in the bill of sale frequently runs that he is a ‘farmer and market gardener,’ which is of itself an indication of the class by whom they are granted. Still, that there are nearly 2,000 such bills in a year indicates a serious amount of indebtedness, and of resulting distress and misery. As a further indication of the class of people by whom bills of sales are mainly granted, it may be noted that it is not so much in the purely agricultural counties where bills of sale are given by farmers, as in the counties of large towns, such, as Lancashire, Cheshire, and Yorkshire, where the so called farmer is rather a market gardener than a farmer. While the eastern counties, such as Essex, Norfolk, Lincoln, and Suffolk do not supply 100 bills each to the registry, and counties like Devon and Cornwall also supply very few; we find that farmers in Lancashire give 275, in Cheshire 129, in Derbyshire 136, and in Yorkshire 383. It is the small men, then, who give bills of sale. The large farmer who borrows must proceed in a different way.

“The *second* and *third* tables which we subjoin will give an interesting amount of information as to the class of lenders. The second is a list of so-called ‘banks’ and other companies who have lent in all in the year the sum of 68,655*l.*, and the third a list of lenders whose names appear frequently, and who, we assume, make lending a profession or business, and whose lendings in all amounted to 56,190*l.*—the bills of sale granted to the former class numbering 563, and to the latter 1,017, or in all very nearly one-half of the whole. We commend these lists without comment to the consideration of those interested. The apparent nationality of most of the individual names is striking, while, as regards the banks and com-

panies, it will be a surprise to our readers, we think, that there are so many 'banks' of which they never heard before. We appear to have here a development of banking in quite a strange direction. One of the banks, we find (the 'National Mercantile'), which advanced 26,181*l.* to farmers in the year on 164 bills of sale, advanced in all in the same year the sum of 79,260*l.* on 830 bills of sale. One of the individual lenders, Abraham Collins, who advanced 4,617*l.* to farmers in 1879, on 60 bills of sale, advanced in all in the same year 23,263*l.* on 483 bills of sale. The business seems thus to be carried on on a considerable scale by some of those engaged in it.

"As we have said, there are no doubt frequent instances of oppression in connection with these bills of sale, and the system is one which gives opportunities for oppression. An astute lender dealing with the ignorant and uneducated in their times of difficulty, and taking advantage of their want of knowledge as well as their necessities, cannot find it hard to make them sign documents which they ought not to sign, and so place themselves in his power. The law has attempted to remedy matters a little by requiring the signature of a solicitor as a witness to every bill of sale, together with a certificate from him that he has read and explained the clauses to the grantor. But a profession which numbers 15,000 members can hardly fail to have some black sheep in it, and we doubt if this will be a real protection against oppression. We are disposed to think that the law would act more wisely by declining altogether to recognise a bill of sale under 200*l.*, unless accompanied by the actual transfer of the goods. A bill of sale, which is virtually a mortgage, is a source of more harm than good to those who grant such documents. At any rate, the extent to which bills of sale are given is a matter of general concern, and it is of real importance that the law should be placed on a proper footing.



1.—*Number and Amount of Bills of Sale on the Effects of Farmers Registered in the Year ending 30th September, 1880.*

County.	Number of Bills Registered.								Total.	Total Value.
	Under 20l.	21l. to 50l.	51l. to 100l.	101l. to 200l.	201l. to 500l.	500l. to 1,000l.	Over 1,000l.	Number Sum-moned.		
Bedfordshire ..	—	2	3	3	2	1	—	3	14	£ 1,870
Berkshire ....	—	5	5	3	—	1	1	2	17	3,052
Bucks .....	2	2	5	7	5	4	—	—	25	6,011
Cambridge ....	1	4	12	4	13	5	5	3	47	19,762
Cheshire .....	10	43	36	24	13	2	—	1	129	14,365
Cornwall .....	14	24	9	5	5	2	—	—	59	5,130
Cumberland ..	4	7	10	13	7	2	1	—	44	9,213
Derbyshire ....	18	60	25	23	8	—	1	1	136	11,433
Dorsetshire ....	3	6	5	2	3	1	1	1	22	4,293
Devonshire ....	8	21	20	16	10	3	—	1	79	9,766
Durham .....	8	38	32	9	12	—	1	1	101	9,853
Essex .....	2	6	6	12	28	8	7	8	77	29,077
Gloucester- shire .....	12	26	28	14	14	1	3	1	99	17,071
Hampshire ....	7	28	12	12	7	3	5	—	74	17,200
Herefordshire ..	8	21	7	9	12	4	1	1	63	11,792
Herts .....	—	3	4	7	5	2	1	—	22	5,821
Hunts .....	—	—	—	2	1	3	—	—	6	2,710
Kent .....	—	12	1	8	14	2	4	5	46	17,532
Lancashire ....	45	93	75	38	23	—	—	1	275	20,822
Leicestershire ..	2	5	4	8	8	4	—	2	33	7,412
Lincolnshire ..	2	16	23	27	15	2	2	3	90	17,664
Middlesex .....	2	2	1	6	7	1	2	1	22	6,614
Norfolk* .....	1	8	7	11	14	6	5	6	58	18,721
Northampton ..	2	11	6	4	3	—	—	1	27	2,467
Northum- berland ..	1	8	4	12	10	—	2	2	39	8,756
Nottingham ..	6	8	12	12	13	3	2	—	56	12,613
Oxfordshire ....	—	1	3	5	6	5	2	2	24	10,952
Rutland .....	—	—	—	2	—	—	1	—	3	1,503
Shropshire ....	2	15	16	14	15	3	1	5	71	12,073
Somerset .....	12	31	13	12	9	4	—	2	83	9,000
Staffordshire ..	25	36	28	29	11	1	—	3	133	12,050
Suffolk .....	1	4	10	10	25	6	7	6	69	28,034
Surrey .....	1	3	9	9	7	—	—	1	30	4,538
Sussex .....	7	14	21	3	12	8	4	4	73	30,693
Warwick .....	7	21	15	16	12	6	1	1	79	14,156
Westmore- land .....	1	2	1	1	—	—	—	—	5	332
Wiltshire ....	7	12	8	4	11	5	5	3	55	17,533
Worcester- shire .....	9	24	14	16	9	1	1	1	75	10,067
Yorkshire ....	40	104	92	57	61	15	6	8	383	62,887
Wales and Monmouth }	44	135	112	78	77	11	2	8	467	62,722
Total .....	314	861	694	547	5,507	125	74	88	3,210	567,560

\* One bill described as an assignment of crops.

2.—*Number and Amount of Bills of Sale on the Effects of Farmers granted in favour of the undermentioned Banks and Companies in 1879.*

	Number of Bills of Sale.	Total Amount.
		£
Commercial Discount Company .....	9	1,554
Imperial Advance Bank .....	29	3,049
„ Deposit „ .....	24	4,566
Midland Credit Company .....	71	9,633
National Advance Bank .....	8	1,594
„ Mercantile „ .....	164	26,181
„ Deposit „ .....	9	1,295
Nottingham Advance Bank .....	21	2,757
Provincial Credit Company .....	16	1,456
Sheffield Deposit Bank .....	12	1,570
Other so-called Banking, &c. Companies } the names of several of which are given below .....	200	15,000
	563	68,655

Albion Loan Company  
 Bank of Industry  
 Bath District and Finance Company  
 Blackburn Bank  
 „ Alliance Company  
 Bolton Advance Bank  
 Central Loan Office  
 Charing Cross Bank  
 City and County Advance Company  
 Commercial Deposit Company  
 County Loan Company  
 „ Palatine Banking Company  
 Durham Financial Company  
 Ebenezer Loan Company  
 Express „  
 Essex Loan Office  
 Exchange and Loan Bank  
 Farmers' Advance Bank  
 Globe Loan Company  
 Heywood District Loan Company  
 Islington Loan Company  
 Joint Stock Investment Association  
 Lincoln Finance Company  
 Lancashire Advance Company

Lancashire and Cheshire Advance  
 Company  
 Liverpool Loan Company  
 London and Westminster Loan Com-  
 pany  
 Manchester Advance Office  
 Monetary Advance Company  
 Mutual „  
 National Loan Office  
 North-Eastern Loan Office  
 Norfolk Finance Company  
 Northern Investment Company  
 Real and Personal Advance Company  
 Rochdale Advance Company  
 Royal Advance Company  
 Sheffield Loan Company  
 South of England Advance Bank  
 „ Lancashire Loan Company  
 Union Advance Company  
 „ Deposit Bank  
 „ Loan Company  
 West Riding Discount Company  
 Yorkshire Discount Company  
 York Union Bank

3.—Number and Amount of Bills of Sale on the Effects of Farmers granted in favour of the Persons undermentioned in 1879.

	Number of Bills of Sale.	Total Amount.
		£
Auerbach, Solomon .....	22	1,350
Barnett, Henry and Harry .....	31	1,296
Beirnsstein, Harris .....	25	1,020
Blaiberg, Benjamin .....	37	2,568
Blaiberg, Solomon .....	90	5,496
Cohen, Barnett .....	27	2,763
Cohen, Henry .....	11	1,738
Collins, Abraham .....	60	4,617
Davis, John .....	6	1,150
Fineberg, Isaac .....	43	1,687
Fisher, Leon .....	23	683
Freedman, Joseph .....	27	843
Gordon, Marcus .....	21	998
Harris, Joseph .....	25	888
Hart, Nathan S. ....	42	2,066
Jacobs, Aaron .....	29	1,270
Levy, Woolfe .....	27	1,458
Mendelssohn, Meyer .....	22	567
Payne, George .....	46	2,711
Phillips, Moses .....	21	954
Seline, Isaac .....	30	1,334
Townend, James .....	26	3,755
Zeffert, Michael .....	21	1,018
Lenders whose names are given below ....	155	8,960
Estimate of loans by apparently professional lenders, other than above ... }	150	5,000
	1,017	56,190

Barnett, Solomon	Jacobs, Heseekiah
Bernstein, Louis	Levi, Samson
Blaiberg, Joseph	Levy, Abraham
Cohen, Isaac	Lyons, Barnett
Cohen, Meyer	Miller, William
Davis, Morris	Powell, William
Evans, John	Walters, Joseph
Fairhead, Thomas	Woolf, Joseph
Hart, Simeon	

IX.—Notes on Economical and Statistical Works.

Guide to the Study of Political Economy. By Dr. Luigi Cossa, Professor of Political Economy in the University of Pavia. Translated from the second Italian edition. With a preface by W. Stanley Jevons, F.R.S. Macmillan and Co., 1880.

Professor Jevons says in his preface to this work that “no intro-

duction to the study of economics at all approaching in character to Professor Cossa's *Guida alla Studio dell' Economia Politica* is to be found in the English tongue." Everyone who reads it either in the original or in the excellent translation, whose appearance we are recording, will endorse the above remark. That this should be so is in accordance with our national genius. English writers are still, as Professor Jevons says, rather ignorant of what has been done in other countries, though the reproach is less true than it was a score or so of years ago. As regards economics specially, English knowledge of the continent was far less than the continental knowledge of England. And one great advantage which the student of Professor Cossa will obtain is a knowledge of the relation of the writings of his own countrymen to those of the rest of the world. The impartiality of the author is remarkable, and his acquaintance with the literature of the subject equally so. Not only that, but the language he uses is exceedingly accurate and clear, and this is of much importance in a volume of so wide a range. It is no small achievement to have planned a work which should trace the history of political economy from the earliest period, noting the contributions of all even the less important thinkers, and describe in a judicial and impartial manner the present position of the science. To have successfully carried out so comprehensive a plan was perhaps more difficult than to conceive it. At any rate it must have been hard to keep the work within the limits proposed for it. The extreme brevity, not to say terseness, of the language is accounted for by this need for the suppression of all that was not essential.

Professor Cossa divides his work into two parts, a general part and a historical part. The first of these is divided into six chapters, and a glance at the titles of these will show what is the scope of the book. They are: The Definition of Political Economy, The Division of Political Economy, The Relation of Political Economy to other Sciences, Method of Political Economy, Importance of Political Economy, and Examination of some objections which have been made to the study of Political Economy. Passing on to the second part, Professor Cossa, after discussing in the first chapter "The Conception, Division, Method, and Sources of the History of Political Economy," proceeds in the succeeding chapters to give a brief outline of that history. In treating this part of the subject he avows himself largely indebted to previous writers, whose investigations have rendered it possible to deal comprehensively with it. The extent of information displayed in this part of the volume is very great, and the comments on the writers whose contributions to the science are discussed, are made in a thoroughly broad and fair spirit. The views and theories of the earlier economists are always considered with reference to the age in which they lived, as well as with reference to their intrinsic importance. It must not be supposed that Professor Cossa attempts to offer any profound criticism of the doctrines that have been held by different economists in former times. All he proposes to do is to give us a general idea of what may be found in their writings, and to indicate where more definite information may be found by anyone who requires it.



He says : "The history of political economy, considered as a *scientific whole* comprehends (1) the *external* history, which narrates the origin and development of economic theories and of the various economic systems considered as a whole, touching also on their more salient points, without descending to particulars. It is either, (a) *general*, when it takes in all periods and nations, or (b) *special*, when it is limited, in time and space, as for example to one epoch, or nation, or system, or to one or two writers. (2) The *internal* or, as some say, the *dogmatic* history, which studies the formation of particular theories (e.g., *value, money, rent*), and which is often treated as an introduction or complement, in connexion with their scientific exposition. . . . The purpose and the dimensions of this *Guide* will only allow us to give a *summary of the external history*, accompanied by the indications necessary to lead to a wider and more profound study." The following remarks of Professor Cossa are worth special attention, both on account of the insight they afford us into the writer's own conception of history and the functions of historical criticism, and because the warning they convey to those who are bent on being "original" *quand même* in economics is a good deal needed just now. "The history of economic theories, though only useful when accompanied by the study of the science as it now exists, is yet a valuable complement to that study. If it be illumined by criticism, it cannot generate systematic scepticism, irrational eclecticism, nor a posthumous apology for antiquated doctrines and institutions. It serves to illustrate the general history of civilisation, and to point out the influence that the theories of economists have exercised on social reforms. It also promotes a more thorough examination of separate theories, which cannot be fully appreciated unless they are traced to their sources." Professor Cossa treats of political economy in ancient times and in the middle ages in one chapter. Until the commencement of the sixteenth century economic investigation was fragmentary. Even when that period had arrived there was not "as yet any complete or really systematic treatment of the science as a whole." In short, "political economy, considered as an independent science, with well-marked boundaries to its field of research, and with its proper method of investigation, is an entirely modern science, it is indeed little more than a hundred years old." The third chapter of Part II carries the history down to the middle of the eighteenth century, and the next deals with the physiocrats. A special chapter is devoted to "Adam Smith and his immediate successors." Of Adam Smith, Professor Cossa has the highest admiration, and he quotes with approval Roscher's remark that "Adam Smith stands in the centre of economic history;" and "that whatever was written before and has been written since, may be considered respectively as the preparation for, and the complement of, his doctrine." The chapters on the economic literature of the nineteenth century, and on contemporary Italian economists, conclude the volume. The chapter on the method of political economy in the first part is very interesting. It is rather remarkable that, in mentioning the authors who have made a special study of statistics, Professor Cossa says not one word about Dr. Mayr.

*Überseeische Politik. Eine culturwissenschaftliche Studie mit Zahlenbildern.* Von Hübbe-Schleiden, D.J.Ü. (Hamburg, L. Friederichsen and Co., 1881.)

Dr. Hübbe-Schleiden's work is an elaborate essay advocating the adoption, by Germany, of a policy of colonisation. He supports his views by a most skilful use of statistical tables, showing how profitable, from a commercial point of view, the English colonies have been, and still are, to the mother country. He has a great admiration for England, and has studied English politics a good deal. He believes, however, that we have reached our culminating point, that we are showing a readiness to abandon the empire which is at present ours, and that it is possible for Germany to occupy the position thus left vacant. How far the wish is father to the thought of Dr. Hübbe-Schleiden, whose patriotism is of the fervid "young German" order, we shall not endeavour to determine. The tables in which he shows that all colonies trade most with the country which founded them, are very interesting. The exception to the rule is Spain, in which the author says "this anomaly undoubtedly arises, not merely, or even chiefly, because the mother country has not carried on its transmarine policy wisely, for that is also true of France, which country draws as much advantage from its possessions as Great Britain and the Netherlands. We must conclude that such a mother country as this is economically and as a propagator of civilisation, weak." The volume contains many valuable observations, and is altogether worthy of attention. Perhaps the most interesting part of it is an attempt to determine the profit obtained by each nation from its trade with every other nation. The method adopted is, we believe, a novel one. It consists in setting the *exports* of country A to country B, against the *imports* of B from A, that is noting the difference between the united values of the articles at the port of shipment, and at the port of arrival. Before doing this Dr. Hübbe-Schleiden makes some elaborate calculations relative to the imports and exports, with a view to eliminating the inequalities and errors arising from the varying conditions of different years, the different modes of valuing employed, and other causes of discrepancy in the values. The results as regards some of the principal countries to which it is applied are thus stated:—

		Profit per Cent.
Trade passing from	Great Britain to France .....	1'8
"	France " Great Britain .....	1'3
"	Great Britain " Belgium .....	1'2
"	Belgium " Great Britain .....	1'9
"	British India " Mauritius .....	2'7
"	Mauritius " British India .....	2'2

The various counties are grouped in "trade centres," and those in the same centre are compared with one another and with those lying in other centres. The idea is ingenious, but we fear that the returns of imports and exports, even of countries whose statistical arrangements are of high excellence, will hardly bear such delicate investigations as these. None the less are the calculations of Dr. Hübbe-Schleiden worth careful examination.

## X.—Notes on some Additions to the Library.

*Trade, Population and Food; a Series of Papers on Economic Statistics.* By Stephen Bourne. George Bell and Sons, 1880.

Mr. Bourne has decided to republish, in a single volume, several of the valuable and interesting papers read by him on different occasions during the last ten years. The title which he has affixed to it describes the character of the volume well, on the whole, but it would have been impossible to convey in any title the whole scope of Mr. Bourne's inquiries, which, as all members of the *Society* are aware, include discussions on the wine duties, the drink question, the silver question, colonisation, besides those matters with which his name is more especially connected, such as the growing preponderance of imports over exports. The introduction to the book is new, and throughout additions have been made whenever events subsequent to the date of the article have rendered illustration or explanation necessary or desirable. In the introduction Mr. Bourne has concisely described what the contents of the volume are, and we therefore propose to quote some passages from it, as being the best possible description of the author's intentions.

"The subjects treated of in the following pages may be ranged under three heads: the progress of our trade, the increase of our population, and the supplies of food which our commerce procures for our people to consume . . . . . The remarkable development of trade in both directions during the twenty years of its greatest prosperity, 1854-74, forms the subject of the second paper, that on 'The progress of our Foreign Trade,' read in 1875; its predecessor, that on the 'Official Trade and Navigation Statistics,' having given information as to the nature of the returns from which the particulars of this progress were derived. It was then that the phenomenon alluded to by Mr. Shaw-Lefevre, in the quotation on the title page, that of the 'Growing Preponderance of Imports over Exports,' was brought to view in No. III paper of 1876 bearing that title. It will be seen, however, from the concluding paragraph of the previous paper, and still more from the notes on p. 233, that at a still earlier date (1873) the analysis to which the trade returns had been subjected, led to doubts as to whether the rapid rise in our imports was altogether compatible with the prosperity of trade when unaccompanied by a corresponding expansion in that of our exports; and from this arose the attempt in that paper, not so much to give the explanation of this phenomenon, which after its reading was in Mr. Shaw-Lefevre's opinion still needed, as to state plainly the circumstances of our trade, in order that its conditions might be properly investigated . . . . . The last paper to be mentioned in this section is No. X, 'On the Silver Question,' in which, besides dealing with the history of the production and prices of the precious metals, it was maintained that there had been neither such an appreciation of gold as to account for the depreciation of silver, nor such a scarcity of the superior metal as would either considerably enhance its value or impede trade transactions . . . . .



There is no room for questioning—whatever may be inferred from it as to the prosperity or adversity of trade or manufactures—that the cause of this continuous balance exists in the ‘Increasing Dependence upon Foreign Supplies for Food,’ the details of which are put forward in paper No. IV, compiled early in 1877 . . . . In paper No. VI, ‘On the Growth of Population, &c.,’ 1877, it was sought to be shown that up to the date when the paper was written, there had been no increase outstripping the means of subsistence produced at home or procurable from abroad in exchange for our manufactures. In No. XII the ‘Social Aspect of Trade Depression’ as the statistics of the several members were affected by it was set forth, whilst in No. XIII the necessity for extended colonisation as a consequence of that depression was contended for; and in No. XVI, on the ‘Finance of National Insurance,’ the practicability of the proposed measures for the prevention of pauperism was investigated from a financial point of view.”

*Forty-five Years’ History of the Tea Trade of Great Britain.* Designed and compiled from Messrs J. C. Sillar and Co.’s Statistics by R. R. Mabson, F.S.S. (Published by J. C. Sillar and Co.)

Mr. R. R. Mabson’s chart of the tea trade supplies a diagram showing for each year since 1835 the average monthly home consumption of tea, the equivalent number of months’ supply in bonded warehouse (export deliveries also included), the course of price of “sound common congou,” and since 1859, the average monthly consumption of Indian tea. The chart is very well designed, and will be of considerable use to persons engaged in the trade, as well as to economists. The most remarkable feature in the present condition of the trade, as shown by the chart, is the smallness of the stock held in recent as compared with former periods.

*Album de Statistique Graphique (Ministere des Travaux Publics; Direction des Cartes, Plans, et Archives et de la Statistique Graphique).* 1880.

This very remarkable volume was published in the summer of 1880. It deals with the railways and other means of communication in France, and consists of sixteen cartographic diagrams. The *Bureau de Statistique Graphique* was in 1878 commissioned to prepare each year a collection of maps showing in the graphic form, the statistical documents relative to the movements of passengers and goods on all classes of means of communication and at the seaports, and relative to their construction and working.

We gather from the notice at the commencement of the work that it has been much enlarged and improved. The former volume only contained twelve plates, of which eight were of small dimensions, while the present work is furnished with sixteen, all of a large size. “As in the Album of 1879, these plates may be divided into two great categories; those in the one set deal with the facts of a single working year (such as the annual tonnage), and under the name of *planches de fondation* will be reproduced every year, in order to admit of a comparison being made of the facts of the same order over a period of time; the others, on the other hand, express the result of a long series of accumulated facts (such as the cost of the first construction of railways), and are therefore conve-



niently reviewed at longer intervals." Of the sixteen plates, twelve are "band cartograms." They may be divided into four groups. First, three cartograms showing the tonnage carried on the railways, canals, and national roads; second, three cartograms relating to the receipts of the railways, showing the gross receipts at various stations all over France, gross receipts per kilometre, and net receipts per kilometre; third, four cartograms relating to cost of construction and "technical conditions" of railways and canals, that is in the case of railways the minimum radius of curves and the maximum incline, as well as the number of lines open, in the case of canals, the number of locks, &c.; fourth, three plates relating to the various means of communication open in Paris, railways, tramways, omnibuses, and steamboats. There are also two other plates showing, first, the extent of rail, canal, and road, open in each department, and second, the cost of maintaining the national roads. Finally, there is a plate showing the growth of the railway system in each of the principal countries from 1830 to 1878.

# XI.—Additions to the Library.

*Additions to the Library during the Quarter ended 31st December, 1880.*

Donations.	By whom Presented.
<b>Argentine Confederation.</b> Buenos Aires, Movimiento de la Poblacion de la Ciudad de, durante el año 1879. 52 pp., imp. 8vo. ....	
	Statistical Bureau
<b>Austria and Hungary—</b>	
Statistisches Jahrbuch für 1877. Heft vii (2 <sup>te</sup> abth.) Landes und Grundentlastungs-Fonde, Dortirte Politische Fonde für Zwecke des Cultus und Unterrichts Gemeinde Haushalt. Imp. 8vo. Wien, 1880 .....	Imperial Central Statistical Commission
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VOL. XLIII. PART IV.	3 B

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## INDEX TO VOL. XLIII,

## YEAR 1880.

	PAGE
AFRICA, population. See <i>Population</i> of the Earth.	
AGRICULTURE (British), ten years' statistics of, 1870-79 (see <i>Craigie</i> )	275
AGRICULTURE. <i>Agricultural Returns for 1880</i> [report by Mr. R. Giffen]	643
Continuation of the favourable conduct of the farmers in affording returns .	643
Changes shown in average sizes of farms since 1875, and decrease in owners of live stock .	644
The returns for Ireland include all holdings, however small, those for Great Britain, owners of not less than a quarter of an acre .	644
Total cultivated area of United Kingdom, 47½ million acres .	644-5
The increase since 1879 shows a considerable portion of land to be annually reclaimed from moor or bog .	645
Increase in areas under wheat and oats over 1879, but falling off of other stock-feeding crops .	645
Green crops slightly below average, but an increase of bare fallow .	646
Grass lands, 14½ million acres (45 per cent. of cultivated area) .	646
Increase of orchards and market gardens; ditto, woods and plantations, 10 per cent .	646-7
Continued decline in import of horses, slight increase of horned cattle, but large decline in sheep and pigs in England and Wales .	647
Changes in crops and live stock in Ireland; decline in corn crops, potatoes, &c., and in sheep, since 1870 .	647
Table of acreage under crops, live stock in grazing and corn counties of England .	649
Tendency to larger farms in England, but not in Scotland and Wales .	650-51
Comparative analysis of the returns of crops and live stock in the British Colonies and the United States .	651-3
Appendix of tables of total area and acreage under crops and grass, and number of live stock in divisions of United Kingdom, kinds of crops and live stock, agricultural holdings, with summary, 1879-80 .	654-63
Table of population, and imports per head of population .	664
AGRICULTURE. <i>The Crops of 1880</i> [from the "Times" of 13th October, 1880]	664
Notice of the different estimates of the wheat crops of 1880, and conclusion that the average is 26 bushels the acre, about the average of the last fifteen years .	664-7
Diminution of area grown since 1874 from 3,833,000 to 3,070,000 .	667
Normal average yield per acre 29½ bushels, but for last ten years only 25½ bushels .	667
Tables of value per acre of home grown wheat, and home and foreign supply, 1866-80 .	668-9
AGRICULTURE, severity of losses in the corn districts of England during the last seven years .	569-70
AGRICULTURE. <i>Agricultural Distress and Bills of Sale</i> [from the "Statist," 20th November]	700
Act for registration of bills of sale, their increase since 1878 from 20,000 to 55 000 .	700
Severe oppression caused by them, as they are obtained by money lenders as a means of plundering the grantee more than as a real security of the advance .	700

AGRICULTURE. *Agricultural Distress, &c.—contd.*

Amount of bills granted by small farmers indicating great agricultural distress; their number greater in large town counties than in pure agricultural counties	701
Classes of lenders, banks, &c.; necessity for improving the law on bills of sale under 200l.	702
Tables of the bills of sale on effects of farmers, 1879-80, and of those in favour of banks, companies, and persons	703-5

AMICI (M.). "Commerce extérieur de l'Égypte, 1879" (notice) . . . 547

ARBITRATION. See *Conseils des Prud'hommes*.

see *Strikes*.

ASIATIC States, population. See *Population of the Earth*.

ASSURANCE. *Rates of Life Insurance Premiums* [from the "Statist"] 123

Variations in the premiums of different offices for different ages	123
The comparisons taken of the "with profit" premiums of the ages between 26 and 41	124
— analysis of ninety-two companies, with a premium income of 12 millions, showing an extreme difference of not more than 6½ per cent.	124-5
Other points as to risks, rate of interest earned, and expenses, more vital than the rate of premium	126
Question as to safety between the cheaper and the dearer companies, what advantages attach to the latter, the relative portion of expenses, &c.	126-9
Tables of companies, with their premiums between the ages 26 and 41, premium income, proportion of expenses	130-34

AUSTRALIA. *Statistics of Australasian Colonies* [from the Registrar-General of New South Wales] . . . 698

Statistical return showing the relative position and aggregate importance of the Australasian colonies, 1879	698-9
--	-------

population. See *Population of the Earth*.

BAGEHOT (W.). "Economic Studies" (notice) . . . 142

BAILEY (A. H.). *Remarks* at anniversary meeting, 1880 . . . 417

ditto (Welton on English Rates of Mortality) . . . 88

ditto (Williams on Population) . . . 502-3

BALFOUR (Surgeon-General T. Graham). *Vital Statistics of Cavalry Horses* . . . 251

Careful collection of these statistics in France	251
The French army: establishment of the "Commission d'Hygiène Hippique" in 1843, form of annual report adopted, its publication since, to 1869, and new series in 1872	251-3
— mortality, 1837-66, 58 per 1,000, and total loss by death and casting, 14 per cent.	253
— table showing decrease in mortality in quinquennial periods, 1837-66, resulting from the labours of the commission	254
— tables showing comparative mortality of horses and mares, 1850-66, at different ages	255-6
— highest mortality at 4 years, probably arising from the mode of preparation and fattening of young horses for sale	256
— table of mortality by different classes of disease, and influence of age on ditto	257-8
— glanders the cause of the greatest mortality, horses at once slaughtered when disease is recognised	258
— tables of causes for which horses were cast, and of losses by death and casting in each arm of the service	259-61
— composition of the French cavalry, and regulations for height and price	260
— table of losses by death and casting in each arm of the service, lower mortality of officers' horses, and high rate of army engineers and transport horses	261-2
— table of admissions into infirmaries by classes of diseases, of horses and mules, in four periods 1847-66, and comparison with deaths	263-4
— table of the influence of seasons on the prevalence of disease	263-6
British army: information chiefly in "The General Annual Returns of the British Army;" aggregate strength, 1861-78, and ratio of deaths and casting, and in different arms of the service	266-7
Marked reduction in loss by glanders in French army since the destruction of infected horses as soon as disease is ascertained	268
Appendix, tables showing strength of cavalry horses in French army, deaths or cast, 1837-66, ditto arranged by age, and in quinquennial periods	269-71



	PAGE
BALFOUR (Surgeon-General T. Graham)— <i>contd.</i>	
<i>Discussion on Surgeon-General Balfour's Paper :</i>	
Rawson (Sir R. W.)	
Referred to Surgeon-General Balfour's former labours for the improvement of the condition of our troops, &c.	271
Walford (Cornelius)	
No authentic statistics obtainable when the insurance of horses was started some few years ago. Importance of the subject in France, where horse flesh was largely eaten	272
Fitzwygram (Sir F. W.)	
The British army statistics of horses to be found at the office of the principal veterinary surgeon; the casting of horses 10 per cent.; comparative number of years' work of horses of cabmen, the omnibus company, brewers, &c.; favourable to our cavalry; glanders much less frequent than in French army	272
Fleming (G.)	
Great reduction in the prevalence of glanders during the last forty years; the greatest percentage of loss among horses of British army from disease of stomach and intestines, in France from those of the lungs and air passages, due to bad stable ventilation; average number of incurable, of deaths, and of numbers destroyed	273
Balfour (Surgeon-General), reply :	
He had not denied the existence of statistics, but that any had been published; the greater mortality of officers' horses, probably from negligence of grooms	274
BALFOUR (T. G.). <i>Remarks in discussion.</i> (Mouat on Education of the Poor)	249
BANK OF ENGLAND—	
weekly return of the issue and banking departments for 1879	180-81
BANKS, LONDON, clearing house, and amounts of promissory notes in circulation (in England and Wales, Scotland, and Ireland) :	
for the year 1879	179
BANKS, leading foreign, circulation and reserves	353
BANK-RATE, <i>table of</i> , and of prices, 1845-79	26
rise of, <i>tables</i> , showing recent quicker action of. the banks in raising	21-2
BARLEY, replacement of wheat crops by it during last ten years.	286
BECKETT (Sir Edmund). <i>Remarks against strikes</i> , in answer to Mr. Howell's speech in favour of them	634
BEHM and Wagner, "Bevölkerung der Erde" (notice of).	690
BEVAN (G. Phillips). <i>The Strikes of the Past Ten Years</i>	35
Strikes now the rule and not the exception, and so grave a disease as to require a careful diagnosis	35
Want of information with regard to their results	36
The strikes sometimes not <i>bond fide</i> , but carried on by trade societies as an investment	37
Number of strikes annually in last ten years	37
Enumeration of the principal causes of the strikes in those years	38
<i>Tables of strikes in each trade, showing large excess in the building trades, and its causes, the humble position of many employers, and the inequality of wages at different places.</i>	39-43
<i>Tables of number of strikes in counties, and at special towns, with character of the trades</i>	44-5
<i>Tables of time spent in strikes in each year, and at special towns, and in particular trades</i>	46-7
Difficulty of learning numbers and results in strikes (one-seventh only)	47-8
<i>Tables of losses known in wages in 110 strikes, in which the facts are reliable, out of 2,238, 4½ million pounds</i>	48-50
Loss also of strike pay, and of profits of employers, to be considered	51
Losses also from transference of whole industries to other countries, depreciation of plant and machinery, deterioration of house property, loss of rents, shop bills, poor rates, and illness	51-2
Experience in France and Belgium of the arbitration by the "Conseils des Prud'hommes," and <i>tables</i> showing satisfactory results of their operations	52-3
Recommendation of the establishment of similar legalised institutions in this country, and proposed constitution for them	53-4
<i>Discussion on Mr. G. P. Bevan's Paper :</i>	
Rawson (Sir R. W.)	
Importance of the suggestion for "Conseils des Prud'hommes"	55

	PAGE
BEVAN (G. Phillips). <i>Discussion on his Paper—contd.</i>	
Bunning (T. Wood)	
Deprecation of the use of slighting expressions on either side; each side alike moved by self interest; strikes not likely to cease, but may be much diminished; important ameliorations at Newcastle in relations of capital and labour (the joint committee and the sliding scale)	55-8
Hill (Alsager).	
Excellent average condition of the industrial classes in England; the question one of economic policy, and want of economic knowledge in the industrial classes; poor payment of secretaries of trade councils	58-9
Howell (Mr.)	
Doubts as to shipbuilding being driven from the Thames by strikes; intemperance of language common to both sides, and strikes sometimes excited by masters; strikes often the only means of the men towards adjusting differences; the battle often fought by a small percentage of a trade for the entire body	59-60
Newmarch (William)	
Evils arising from the Act of Parliament allowing trade societies to mix in one fund contributions for life assurance and sickness and those for strike and trade purposes; fundamental defect of trades unions, the placing checks in the way of superior skill	61
Walford (Cornelius)	
Great injuries to our international interests, and loss of our supremacy in foreign trade, caused by strikes	62
Vanderbyl (Philip)	
Definition of a strike; their prevention probable by employers being allowed to classify their men and pay according to merit	62
Beckett (Sir Edmund)	
Mr. Howell's reasoning about strikes often mere begging of the question; his fallacy as to an analogy between strikes and an insurance company against fire; necessity for getting as much work out of the earth as the world could do without injury to its health; trade outrages caused by unionism; objection to Mr. Howell's statement that shipbuilding was not driven from the Thames by strikes	63-4
Pochin (H. D.)	
Arbitration unsatisfactory, and differences as to wages must be settled by supply and demand, without combination of workmen or masters	64
BEVAN (G. Phillips). <i>Remarks on the increase of crime among Welshmen since extension of railways, from bad associates</i>	461
industrial geography primers (notice)	389
BILLS OF SALE. See <i>Agricultural distress.</i>	
BIMETALLISM, recognised by the Bank Acts	22-3
BLACK DEATH, in 1348, notice of	607
<i>tables of the mortality of</i>	635
BLANQUI (J. H.). "Political Economy in Europe," 1880 (notice)	546
BOOKS. <i>English Literature in 1879</i>	114
Extracts from the "Publishers' Circular," with analytical <i>table</i> of books published in 1879, and comparison with 1878	114-16
BOOKS. <i>German Literature of 1878-79</i>	116
Systematic view of the literary productions of the German bookselling trade in 1878-79	116-17
BOOKS. <i>Notes on Economical and Statistical Works</i>	139
Foville (Alfred de). "Transformation des Moyens de Transport"	139
Del Mar (A.). "History of the Precious Metals"	142
Bagehot (W.). "Economic Studies"	142
<i>Notes on Economical and Statistical Works</i>	382
Palgrave (R. H. I.). "Bank-Rate in England, France, and Germany, 1844-78"	382
Spon (E. and F.). "The Iron, Steel, and Allied Trades in 1879"	384
Peschel (O.). "Europäische Staatenkunde"	387
<i>Notes on Economical and Statistical Works</i>	531
Report of the Indian Famine Commission. Part I, Famine Relief	531
Twenty-fourth report of H. M.'s Commissioners on the Customs, 1880	543
Kolb (G. F.). "The Condition of Nations, Social and Political, 1880"	545
Blanqui (Jérôme A.). "History of Political Economy in Europe, 1880"	546

BOOKS.	<i>Notes on Economical and Statistical Works</i>	PAGE
Cossa (L.).	"Guide to Political Economy"	705
Hübner-Schleiden.	"Überseische Politik"	707
BOUCHIER (Capt.).	<i>Remarks in discussion</i> (Mouat on Education of the Poor)	248
BOURNE (Stephen).	<i>Remarks in discussion</i> (Patterson on the Value of Money)	29-30
	<i>ditto</i> (Welton on English Rates of Mortality)	92
	<i>remarks on the benefits of emigration in meeting our increase of population.</i>	506-7
	on "Trade, Population, and Food," 1880 (notice)	709
BRASSEY (Thomas).	<i>Remarks in discussion</i> (Patterson on the Value of Money)	33-4
	<i>remarks at anniversary meeting, 1880</i>	418
	reference to papers by him on British agriculture	559
BULLION and SPECIE,	gold and silver imported and exported, January—December, 1877-79	175
	see <i>Gold, Silver.</i>	
BUNNING (T. Wood).	<i>Remarks in discussion</i> (Bevan on Strikes)	55-8
CAIRD (James, C.B.).	<i>Inaugural Address as President of the Statistical Society, Tuesday, 16th November, 1880</i>	559
	Reference to previous papers on British Agriculture by Mr. Brassey and Mr. Shaw-Lefevre, and the reports on the United States and Canada	559
	Statement of the probable course of prices; reduction in cost of transport by rail and river, and in price from the enormous area of rich, light, and as yet untilld soil in Canada and the United States	560-62
	Momentous import of this to the heavily taxed food producers of Europe and this country	563
	<i>Table of relative quantities and value of food imported in 1870 and 1879</i> (corn doubled, and pork increased ninefold)	563-4
	Production of vegetables, poultry, fruit, &c., in the Eastern States in place of corn, owing to reduction of cost of transport from the west	564
	Our English counties soon to be in the same position, as to the low range of prices of corn from America, and necessity for their also turning their attention to green crops and articles of food the produce of them	565
	Necessity for freeing the land from heavy settlements, costs of transfer, and uncertainty of title; measures of Sir R. Peel and Lord Cairns for that object	566-8
	Simplicity of title would lead to facility of transfer, which would rapidly stimulate improvement	568-70
	Favourable condition of Irish tenants now to their state in the potato famine of 1846-50	569
	Severity of the losses in the corn districts of England during the last seven years, desertion of farms and entire loss of capital	569-70
	Hopeful character of the future in the spread of the Anglo-Saxon race, with its habits of order, instincts of self government and love of liberty	571
	Notice of Mr. Giffen's agricultural returns	571
CALCRAFT (Mr.).	See <i>Railways</i> (Board of Trade report).	
CATTLE,	increase of, <i>tables of, 1870-79</i>	291-4
	see <i>Agriculture.</i>	
CENSUSES.	See <i>Population of the Earth.</i>	
	Census of 1881. <i>Report of a Committee of the Statistical Society with Reference to the Census of 1881</i>	134
	Suggestions as to the nature and form of inquiries to be made; the report to be general of the whole kingdom; special reports of government departments, industrial census postponed, census every five years; notice of religious profession; number of rooms in houses, &c.	135-7
CENSUSES of the United States,	historical retrospect of the first nine	573-5
—	their cost	581
tenth, of the United States,	note on (see <i>Mouat</i> )	573
—	appendix of forms for taking	588-602
CHADWICK (Edwin).	<i>Remarks in discussion, in favour of the larger schools</i> (Mouat on the Education of the Poor)	244-5

	PAGE
CHADWICK (Edwin)— <i>contd.</i>	
treatment of pauper children on a larger scale, <i>table</i> illustrative of school organisation for reducing expenses, with increased efficiency . . . . .	245-6
<i>remarks</i> in discussion (Craigie and Lawes and Gilbert, Agricultural Statistics) . . . . .	333-5
CHUBB (H.). <i>Remarks</i> at anniversary meeting, 1880 . . . . .	422
COAL, estimated consumption of, in United Kingdom, for 310 years . . . . .	491-2
COHEN (L. L.). <i>Remarks</i> in discussion (Patterson on the Value of Money) . . . . .	27-8
COINAGE of gold and silver at the mint, total amount, 1843-65. . . . .	{ 23 (note)
COMMERCE. <i>Financial and Commercial History of 1879</i> [from the "Statist," by R. Giffen] . . . . .	95
General gloom of the early part of the year, followed in the autumn by the demand for iron manufactures, and reaction in trade . . . . .	95-6
Act for enabling unlimited banks to become limited . . . . .	96
Indian trade revival, and recovery in price of silver, improvement in Egyptian affairs, and drain of gold to the United States . . . . .	97
Danger of an Eastern, followed by an European war . . . . .	97
The trade revival, rise in price of iron and other metals, English railways, and various trades . . . . .	98-100
— question of its progress in spite of a bad harvest, and analysis of the causes of a revival . . . . .	100-102
— <i>tables</i> showing great check to production in the iron and wool trades, &c., in spite of revival . . . . .	103-4
The harvest failure and other events; the worst season on record, reduction in yield 30 to 50 per cent., but the agricultural industry only a tenth of the whole industry of the country, and the net reduction about 50 million pounds . . . . .	105-6
The rise in silver, from 49 <i>d.</i> to 53 <i>d.</i> , and its causes . . . . .	106
The drain of gold to America, since the resumption of specie payments . . . . .	106-7
Scientific improvements, the prospects of 1880 cheerful and on a solid foundation . . . . .	108-9
COMMERCE. <i>General Results of the Commercial and Financial History of 1879</i> [from the "Economist"] . . . . .	341
Six years of depression, from September, 1873, to September, 1879, succeeded by activity of trade and rise in prices since October, 1879 . . . . .	341
Enormously increased budgets and military expenditure and national debts of the European States, compared with 1865; total expenditure from 398 to 585 million pounds . . . . .	342
Gazette average price of wheat, 1873-79 (the 1879 harvest the worst for thirty years), in England and Europe . . . . .	343
Competitive supply of American and Australian meats, their sale as home-fed meat, &c. . . . .	344-5
Iron and steel production, exports, &c. . . . .	346-8
Cotton industry, prices, exports, &c. . . . .	349-51
Wool, prices and imports . . . . .	351-2
Silver, imports and exports to the East, &c., 1867-79 . . . . .	352
Banks, leading foreign, circulation and reserves . . . . .	353
Wholesale prices in London, <i>tables</i> of, at four dates, 1867-79 . . . . .	354
CONSEILS DES PRUD'HOMMES, results of the arbitration of, in strikes, in France and Belgium . . . . .	52-3
CORN. Gazette average weekly prices (with monthly and quarterly averages), 1879 . . . . .	176-7
<i>see Prices of</i>	
COSMA (L.). "Guide to Political Economy" (notice) . . . . .	705
COTTON industry, price and exports . . . . .	349-51
CRAIGIE (Captain Patrick George). <i>Ten Years' Statistics of British Agriculture, 1870-79</i> . . . . .	275
Value of the annual agricultural statistics; the original objections to filling up the forms largely overcome, from the inquiry not being found to be inquisitorial . . . . .	275
— the extent of the area dealt with in the last ten years only slightly varying between 77 and 78 million acres . . . . .	276
Classification of areas; reasons for not following strictly the "corn" and "grass" or "pastoral" divisions in favour of a geographical triplicate division . . . . .	276-8
Distribution of the surface of the country: as first and second corn districts, arable and grain districts; England as a whole, &c., in 1870 and 1879 . . . . .	279-80



CRAIGIE (Capt. P. G.). *Statistics of British Agriculture—contd.*

Ten years' changes in cultivated, arable, and pasture land: <i>tables</i> of increase and decrease in each division, 1870-79, and percentage of cultivated area	280-83
Changes in particular crops: a million acres less of corn than at the beginning of the decade	283-4
— wheat: large reduction of acres, especially in Scotland and Ireland, where it is 40 per cent.	285-6
— barley: the crop equal to that of wheat, much of the latter having been replaced by it	286
— oats: chief part grown in Scotland and Ireland: 72 to 76 per cent. of corn land, while only 7½ per cent. in England; great decrease in each division	287
Changes in the number of live stock: 200,000 more horses, 727,000 more cattle, and reduction of 548,000 in sheep, than in 1870	288
— horses, the increase in them chiefly among young horses and breeding mares (owing to remunerative prices) in the corn districts, and in agricultural work, but latterly in the grass districts (with <i>tables</i> at three periods)	289-90
— cattle, number 10 millions, <i>tables</i> of relative numbers per 100 acres, and at three periods, 1870-79, showing increase or decrease	291-4
— movement of cattle to corn districts for feeding purposes in winter, depriving local statistics of their value	292
— if foreign diseases be kept out of the country, meat production may increase, without much conversion of arable into pasture land	293
Sheep: <i>table</i> of number at three periods, 1870-79, and their increase or decrease	294-6
Size of farms: great discrepancies between the census and the agricultural returns: average size of farms in the former 152 acres, in the latter 57 acres; exhaustive character and correctness of the latter	296-9
Number and average of holdings: <i>tables</i> , with statement of how and when returns were obtained, the relative acreage of the several classes of holdings, whether corn or grass, &c.	299-304
Changes in rent: its amount arrived at nearest in the assessment to Schedule B of the income tax; <i>table</i> of changes in 1869-78	304-6
Summary: variation in wheat crop per acre in corn and grass districts 21½ to 33 bushels, barley 31 to 39, &c.; size of agricultural holdings	306-7
Appendix: <i>tables</i> of entire cultivated area in counties, changes in acreage of corn crops, and rent of land, 1870-79	308-12

for Discussion on Captain Craigie's Paper, see under Lawes and Gilbert. (*Discussion.*)

CRAIGIE (Captain). <i>Reply</i> in discussion on his paper	339
CRIMES committed, apprehensions and proceedings	425-9
classification of, in <i>tables</i> , according to Mr. Justice Stephen's proposed code	429-32
causes of	433
locality of (with graphic <i>tables</i> in illustration)	434-7
in relation to ignorance, sex, &c.	435-7
punishment of	438-44
<i>tables</i> of committals, and summary procedures, percentage of ignorance, pauperism, &c.	447-56
CRIMINAL OFFENCES. Survey of indictable and summary jurisdiction offences in England and Wales, from 1857 to 1878 (see <i>Levi</i> ).	423
CROPS. See under <i>Agriculture</i> .	
CUSTOMS Report, 1880 (notice)	543

DEATH RATE. Regularity of the variation of, at different periods of life	65
see <i>Mortality</i> .	
<i>tables</i> of, among males, 1851-75, from specified diseases	82
DEATHS. See <i>Mortality, Registration</i> .	
DEATH, PUNISHMENT of, acquittals large in cases of murder; public opinion on, &c.	440-42
DEL MAR. "History of the Precious Metals" (notice)	142
DOXSEY (Rev. I.). <i>Remarks</i> in discussion (Welton on English Rates of Mortality)	88-9
<i>remarks</i> in discussion (Mouat on Education of the poor)	249
DUN (Finlay). <i>Remarks</i> on the profitable substitution of barley, grass, and garden crops for wheat	336-7

	PAGE
EDUCATION and Training of the Children of the Poor (see <i>Mouat</i> ) . . . . .	183
— standards of elementary, lists of subjects, &c. . . . .	228-30
cost of, in the poor law metropolitan schools . . . . .	209-212
see <i>Schools</i> .	
EGEDE (Hans). Settlement in Greenland in 1721, &c. . . . .	514
EGYPT, Statistical Tableau of, 1879 (notice) . . . . .	392
EMIGRATION. <i>Emigration and Immigration in the Year 1879</i> [Mr. Giffen's report to the Board of Trade] . . . . .	117
Increase of emigration, and decline of immigration compared with 1876-78 . . . . .	117-18
A falling off in emigration a sign of depression of trade . . . . .	119
Tendency to a decline from period to period, as illustrated since 1870-73 ;	
increase in 1879, principally to United States and British North America . . . . .	120-21
Comparative number of cabin and steerage passengers in 1876-79 . . . . .	121
Statement of persons of English, Dutch, and Irish birth, in total emigration	
in years 1853-79 . . . . .	122
Totals of Irish emigration, 1861-79, showing decrease . . . . .	122
Increase in certain classes of British and Irish emigrants in last year . . . . .	122
EXCHANGES (Foreign), quotations for 1879 . . . . .	182
EXPORTS, United Kingdom, 1875-79 . . . . .	173
see <i>Imports</i> .	
see <i>Prices of</i> .	
FAMINE (INDIAN) commission report (notice) . . . . .	531
FARMS, average size of, great discrepancies between the census and	
agricultural returns (with <i>tables</i> ) . . . . .	296-304
FAROE ISLANDS, climate, production, and exports, population and	
mortality (see <i>Westergaard</i> ) . . . . .	509-13
FINANCIAL HISTORY. See <i>Commerce</i> .	
FIRES. <i>The Fires of London during the Year 1879, and the Metro-</i>	
<i>politan Fire Brigade</i> [from Captain Shaw's Annual Report for	
1879] . . . . .	109
Number of fires, proportions of slight to serious losses, lives lost, &c.,	
strength of the brigade, list of fires according to occupations, 1876-79,	
numbers classed under causes, and in reference to days of the week . . . . .	109-14
FITZWYGRAM (Sir F. W.). <i>Remarks</i> in discussion (Balfour, Vital	
Statistics of Cavalry Horses) . . . . .	272
FLEMING (G.). <i>Remarks</i> in discussion (Balfour, Vital Statistics of	
Cavalry Horses) . . . . .	273
FLETCHER (Jos.)—Notice of his papers on education in the Society's	
<i>Journal</i> . . . . .	184-5
FOSSICK. See <i>Iron Trade Chart</i> .	
FOVILLE (A de). "Moyens de Transport" (notice) . . . . .	139
GABAGLIO (A.). "Storia della Statistica" (notice). . . . .	144-7
GIFFEN (Robert). <i>Remarks</i> in discussion (Patterson on the Value of	
Money) . . . . .	30-32
<i>ditto</i> (Levi on Criminal Offences) . . . . .	458
see <i>Agriculture</i> (Returns, 1880).	
<i>notice</i> of his Agricultural Returns . . . . .	571
see <i>Commerce</i> (financial and commercial history, 1879).	
see <i>Emigration</i> (report to Board of Trade).	
see <i>Railways</i> (Board of Trade report).	
GILBERT (J. H.). See <i>Lawes</i> and Gilbert on Wheat Produce and	
Consumption.	
<i>reply</i> in discussion on his and B. Lawes's paper on wheat . . . . .	340
GOLD DRAIN to America since the resumption of specie payment there	
106-7	
GREENLAND, rate of mortality in, compared with that of Denmark,	
&c. (see <i>Westergaard</i> ) . . . . .	514-20
Hans Egede's settlement there in 1721, &c. . . . .	514
supply of food and mode of life in . . . . .	520

	PAGE
GUY (William A.). <i>Remarks</i> on sanitary improvements at Christ's Hospital, and on the benefits of consolidating workhouses . . .	249-50
<i>remarks</i> at anniversary meeting, 1880, relative to house accommodation for the Society . . . . .	420
HALL (E. Hepple). <i>Remarks</i> in discussion (Mouat on United States Census) . . . . .	603-4
HAMILTON (Rowland). <i>Remarks</i> in discussion (Welton on English Rates of Mortality) . . . . .	94
<i>ditto</i> (Levi on Criminal Offences) . . . . .	460-61
HARVEST FAILURE of 1879 . . . . .	105-6
<i>see</i> under <i>Agriculture</i> .	
HENDRIKS (Fred.). <i>Remarks</i> on Captain Graunt's work on population in 1662 . . . . .	505
HILL (Alsager). <i>Remarks</i> in discussion (Bevan on Strikes) . . . . .	58-9
HOARE (Henry). <i>Remarks</i> in discussion (Patterson on the Value of Money) . . . . .	28
HOLGATE (Wyndham). <i>Remarks</i> in discussion (Mouat on Education of the Poor) . . . . .	248
HORSES, recent increase of, &c. . . . .	288-90
— (cavalry) on the vital statistics of (see <i>Balfour</i> ). . . . .	251
— — vital statistics of, of the French army . . . . .	251-66
— — <i>ditto</i> of the British army . . . . .	266-7
HOWARD (John), on the labours of, on the subject of the oriental plague (see <i>Potter</i> ) . . . . .	605, 613
HOWELL (Mr.). <i>Remarks</i> in favour of strikes . . . . .	59-60
HÜBBE-SCHLEIDEN, "Überseeische Politik" . . . . .	707
HUMPHREYS (N. A.). <i>Remarks</i> in discussion (Welton on English Rates of Mortality) . . . . .	90-91
<i>remarks</i> on the rate of increase of population, and the estimates of Dr. Farr . . . . .	503
HURST (George). <i>Remarks</i> in discussion (Mouat on Education of the Poor) . . . . .	247
<i>ditto</i> (Williams on Population) . . . . .	506
IMPORTS, United Kingdom, 1876-79 . . . . .	172
<i>see</i> <i>Trade, Exports</i> .	
INSURANCE. <i>See</i> <i>Assurance</i> (Life).	
IRELAND, favourable condition of tenants in now, to their state in the potato famine of 1846-50 . . . . .	569
IRON TRADE Chart, Fossick's, summary of the history of the iron trade for the past fifty years, as shown by it [compiled by R. R. Mabson] . . . . .	380
IRON and STEEL, production, exports, &c. . . . .	346
JOURDAN (B. A.), on "Improvements in Education in the Eighteenth and Nineteenth Centuries" (notice) . . . . .	388
JURISDICTION (indictable and summary). <i>See</i> <i>Criminal Offences</i> .	
KOLB (G. F.). "Condition of Nations, 1880" (notice) . . . . .	545
LAND, necessity for freeing it from settlements, heavy costs of transfer, &c., to compete with prices from America . . . . .	566-70
arable and pasture. <i>See</i> <i>Agriculture</i> .	
LAWES (J. B.). <i>Remarks</i> in discussion (Craigie, and Lawes and Gilbert, Agricultural Statistics) . . . . .	332

	PAGE
LAWES (J. B.) and J. H. GILBERT. <i>On the Home Produce, Imports, Consumption, and Price of Wheat, over Twenty-eight Harvest Years, 1852-80</i>	313
Reference to a similar paper by the authors in the "Agricultural Society's Journal" in 1868	313
Elements of the question, and statement of returns, whence estimated, &c.	313-16
— area under wheat	313
— average yield of wheat and aggregate home produce	314
— imports, population, and average consumption of wheat	315
Account of selected plots, without, with farmyard, and with artificial manure, at Rothamsted, on which the United Kingdom averages are founded	316-19
— this average too high in abundant seasons, and too low in unfavourable ones	317
— gradual exhaustion of the unmanured plot, equal to one quarter of a bushel per annum	318
— the increasing produce on the farmhouse manure plot at the lowest $1\frac{1}{2}$ bushels per annum	318-19
— in artificially manured plots, no change except due to season, productive years showing excess over standard, and bad seasons a deficiency	319
Table showing deviation in four periods from average of twenty-eight years	320
Table, with analysis, showing comparative estimates for four periods, and total period of home produce and of average produce per acre	321-3
Tables, with analysis, of average produce per acre, and of total required for consumption, with imports, showing home produce required, &c., 1852-80	324-5
Increased consumption per head in United Kingdom since free trade in corn, from 5·1 bushels to 5·6	327-8
Summary of conclusions of produce, consumption, price, &c., as shown in the tables	329
General table of home produce, imports, consumption, and price of wheat, for twenty-eight years, 1852-80	330-31
<i>Discussion on Captain Craigie's and Messrs. Lawes and Gilbert's Papers:</i>	
Lawes (J. B.)	
Objection to Captain Craigie's not including Lincolnshire in the first class corn counties; decline of the area under wheat in particular counties; increase in the acreage of barley especially in Suffolk	332
Power (E.)	
Considered the consumption of wheat was nearer 6 than 5·1 bushels per head; consumption not increased by low priced bread, as when the price is high less meat can be bought, and the population live more on bread	332-3
Chadwick (Edwin)	
Objections to the census details being summarised in a central office, as causing error and delay; if summarised locally by the officers of health and school teachers, the census which now takes three years might be completed in three months; many points of great value to localities as to difference of labour, wages, population of streets, &c., now omitted; defective base on which agricultural statistics are founded; the experience of sewage farms that the produce is as 5 to 1 of the common manure farm; an annual census possible, with returns of the differences from year to year; the object already achieved in Russia	333-5
Walford (Cornelius)	
Large amount of information on statistics of food in the Society's <i>Journal</i> ; the fear of tenants to give information to their landlords giving way, and future estimates likely to be more correct	336
Dun (Finlay)	
Difficulty of producing full crops of wheat where there was a heavy rainfall, like parts of Wales and Scotland; substitution of barley and grass for wheat in the midland counties; necessity for arable (for oats, clover, and roots) as well as grass land where cattle and sheep are kept; benefits to the western parts of England of superseding wheat by garden crops	336-7
Read (Clare Sewell)	
With the great increase of reaping and other machines, the amount paid for agricultural labour 30 per cent. more than fifty years back; difficulty in understanding where the stated increase in arable acreage came from, except by supposing earlier returns incorrect; only the best qualities of barley used by the brewers: interest attached to Mr. Lawes's annual statement, from its giving the increase of yield instead of acreage; disheartening statement in the last paper as to the decrease of 13 million quarters of wheat grown in England, and increase of 20 millions imported; the produce of land not increased rateably, with cost of production, owing to use of artificial manures and feeding stuffs	337-9
Craigie (Captain) reply:	
Reasons for not including Lincolnshire in higher corn counties; question of reducing the limits of the county area, as too large for agricultural analysis	339



CRAIGIE, LAWES, and GILBERT. *Discussion on their Papers—contd.*  
 Gilbert (Dr.), reply :

Question of wheat consumption in answer to Mr. Power, as more than 6 bushels for England and Wales, but less for the United Kingdom; his opinion that the produce per acre is 30 bushels per annum, too high; reply to Mr. Chadwick's remarks on their estimates from a single farm; their estimates of consumption calculated on dietaries as recommended by Mr. Chadwick . . . . . 340

LAWSON (Robert). *Remarks in discussion (Welton on English Rates of Mortality)* . . . . . 93

LEFEVRE (George Shaw), reference to paper by him on British Agriculture . . . . . 559

LEVI (Leone). *Survey of Indictable and Summary Jurisdiction Offences in England and Wales from 1857 to 1876, in Quinquennial Periods, and in 1877 and 1878* . . . . . 423

Reference to previous papers on the statistics of crime, in the *Journal*, &c. . . 423  
 The Police Act of 1857, the commencing point of our judicial statistics . . 423-4  
 Favourable character of the succeeding years, as regards the economic condition of the people, in spite of oscillations of depression and excitement . 424  
 Police force, increased proportion of to the population, 1857-78, 7 per cent. . 425  
 Crimes committed, diminution from 2·72 to 2·14 per 1,000; excess of crime against the person in summer, and against property in winter . . . . . 425-6  
 Apprehensions for crime: diminution, but comparative increase of crimes reported to persons apprehended; want of a public prosecutor . . . . . 426-7  
 Criminal proceedings: number discharged (38 per cent.) and committed (62 per cent.) . . . . . 428  
 Proportion of apprehensions to population: proportion of summary jurisdictions 19—26 per 1,000; of total offences in England 27, Scotland 41, Ireland 51, and France 19 per 1,000 . . . . . 428-9  
 Classification of crime: in *tables*, according to Mr. Justice Stephen's proposed criminal code, and proportion per 1,000 . . . . . 429-32  
 Causes of crime: given now in cases where the highest penalty is awarded; causes given in French statistics; drunkenness an aggravating not a primary cause . . . . . 433  
 Locality of crime: crimes and offences, 1857-78 in different groups of counties — set of five *graphic tables* in illustration; crimes, offences, ignorance, savings banks, and pauperism . . . . . 434-7  
 Crime and density of population [greatest in densest], and in occupations: least in mineral, most in industrial and manufacturing; offences least in agricultural, most in mineral . . . . . 434-6  
 Crime in relation to ignorance, savings, and pauperism [ignorance hand-in-hand with crime, but the other relations not clear] . . . . . 435-6  
 — in relation to sex [Scotch women more lawless than English or Irish] . . 436-7  
 Character of criminals: large proportion from the known criminal classes . 437  
 Proportion of acquittals to committed for crime [larger in indictable than in summary jurisdiction offences] . . . . . 438  
 Punishment of crime: proportion of fines and imprisonment in summary jurisdiction; terms of imprisonment, and proportion of acquittals . . 438-40  
 Punishment of death: acquittals large in cases of murder (only 36 per cent. convicted, in Scotland in 1878, 75 per cent., and in Ireland 25 per cent.) . . 440  
 — statement of the progress of public opinion on capital punishment, the difficulty in obtaining conviction in consequence of it, and its little use as inspiring a dread of death . . . . . 441-2  
 Commitment to prison and recommitments [contamination of prisons?] . . 443-4  
 Age, education, and nationality of prisoners [large proportion between 21 and 30; decrease in the uneducated, and relative proportion greatest among those not born in England] . . . . . 441-6  
 Conclusions: improvement in character of crime; desirable changes in English character . . . . . 446  
*Tables*, quinquennial average number of committals and summary procedure. — percentages of ignorance, saving habits, pauperism, sex, ages, birth-place, degree of instruction, class of occupation, and committals to reformatory schools . . . . . 447-51  
 . . . . . 452-6

*Discussion on Professor Leone Levi's Paper :*

Rawson (Sir R. W.)

Reference to a paper of his own on the same subject for 1834-38, and statements of the difference of his results with those of Professor Levi, as to juvenile criminals, &c. . . . . 456-8

Giffen (Robert)

Professor Levi's statistics based on sources which were beyond doubt, and the gradual diminution of serious crime during the last forty years a great fact; objection to the author's supposition that more persons were annually drawn to a criminal life . . . . . 458

	PAGE
LEVI (Leone). <i>Discussion on his Paper—contd.</i>	
Walford (Cornelius)	
Usefulness of the author's charts in exhibiting the effect of the educational code, and the effect of education on the nature of crime . . . . .	459
Tallack (William)	
Benefits of healthy dwellings and common sense religion in reducing crime in Cornwall, Cumberland, and Westmoreland, in spite of deficient education; curious incident of four deaths in a village including one execution, being magnified into 25 per cent. of the people being executed . . . . .	460
Hamilton (Rowland)	
Importance of the subject of recommitments, and necessity for supervision over ticket-of-leave criminals otherwise entering service under false pretences, and at the mercy of old associates . . . . .	460-61
Bevan (G. Phillips)	
Increase of crime among Welshmen since the extension of railways, from immigration of bad associates . . . . .	461
Levi (Leone) reply . . . . .	461
LIBRARY of the Society. <i>Notes on some of the Additions to the Library in 1880:</i> . . . . .	143
"Annuaire Statistique de la Norvège;" "Censo de Espana, 1877;" Gabaglio (A.), "Storia della Statistica" . . . . .	143-7
Jourdan (B. A.) on "Improvements in the Education of Children in the Eighteenth and Nineteenth Centuries, 1880;" Bevan's "Industrial Geography Primers, 1880;" "Précis of Official Papers, 1880;" "Neison's Rate of Accidents in Mines and Railways, 1880;" Neumann-Spallart, "Production, Verkehr und Handel in der Weltwirthschaft, 1880;" Van den Berg, on "Production and Consumption of Coffee, 1880;" Mullhall's "Progress of the World in Arts, &c., 1880;" Baden-Powell on "Protection and Bad Times, 1879;" "Egyptian Statistical Tableau for 1879" . . . . .	388-93
"Commerce Extérieur de l'Égypte, 1879," by M. Amici . . . . .	547
Bourne (Stephen). "Trade, Population, and Food, 1880;" Mabson (R. R.) "Forty-five Years' History of the Tea Trade" (Sillar's Statistics); "Album de Statistique Graphique, 1880" . . . . .	709-11
LIBRARY of the Society, additions to, in 1880 . . . . .	<div style="display: flex; align-items: center;"> <div style="font-size: 3em; margin-right: 10px;">{</div> <div> 147-58 393-404 548-58 711-20 </div> </div>
LITERATURE (English). See <i>Books</i> .	
LIVE STOCK, great increase in horses and cattle, but reduction in sheep, since 1870 . . . . .	288
see under <i>Agriculture</i> .	
LONDON. See <i>Population</i> .	
see <i>Fires of</i> .	
see <i>Plague of</i> .	
LUNG DISEASE, increase of, in the manufacturing districts . . . . .	79-81
MABSON (R. R.). See <i>Iron Trade Chart</i> .	
"Forty-five Years' History of the Tea Trade" (notice) . . . . .	710
MARINE CASUALTIES. See <i>Shipwrecks</i> .	
MARRIAGES. See <i>Registration</i> .	
MARTIN (J. B.). <i>Remarks in discussion</i> (Williams on Population) . . . . .	507
MEAT. Competitive supply of America and Australia . . . . .	344-5
METALS, precious, production and employment of . . . . .	13-16
see <i>Gold, Silver, Mines</i> .	
METEOROLOGICAL TABLES (general), by James Glaisher . . . . .	164-5
MINES (gold and silver), produce of, and its effect on prices . . . . .	9-13
MONEY. Is the Value of Money rising in England and throughout the World? (See <i>Patterson</i> ) . . . . .	1
effect of the fluctuating condition of trade upon the value of (see <i>Pat'erson</i> ) . . . . .	1
see <i>Prices</i> .	
MORTALITY of England and Wales, on certain changes in the English rates of (see <i>Welton</i> ) . . . . .	65

MORTALITY—*contd.*

causes of the increase of, amongst males aged 35—65, with <i>tables</i>	78-80
— annual rate per 1,000 in divisions, in town and country districts, and in special towns in 1879	161-2
MORTALITY in remote corners of the World [Faroe Islands and Greenland] (see <i>Westergaard</i> )	509
of the Faroe Islands less than in Denmark, infant mortality, &c., influence of seasons	510-13
of HORSES. See <i>Horses</i> , vital statistics of.	
MOUAT (Frederic J., M.D.). <i>On the Education and Training of the Children of the Poor</i>	183
Introduction: the author's acquaintance with educational institutions in India and this country	184
— notice of Joseph Fletcher's papers on schools and education, in the <i>Journal</i>	184-5
— pauper children, description of the class, their origin, low physical condi- tion, scrofulous taint, &c.	185-8
— avoidance of the term in Holland, where the education of the poor is gratuitous	186
The Past: state of the question prior to the Poor Law Amendment Act of 1834, and improvements since	188-91
The Present: methods of dealing with pauper children, how disposed of, and number under each kind of instruction	191-3
— workhouse schools: objection to the training of children in them, with quotation from "Walker's Original" to that effect	193-6
— separate schools: list of those in operation in 1878, and value of the largest of them as on the footing of district schools, but objection to the daily return to the workhouse	196-8
— certified schools under private management, number in 1878, 76	198-9
— training ships: the "Goliath," its destruction by fire, and its successor the "Exmouth;" instances of the admirable training of the boys at the fire, &c.	199-202
— boarding out: difficulty of the question, Professor Fawcett's objections to it as rewarding the improvident at the expense of the thrifty; statement of the present extent of its adoption	202-6
— district schools: eleven in existence at the present time; objection to use of pupil teachers for the youngest; kinds of industrial and physical training employed	206-9
— cost of education in the poor law district separate metropolitan schools; expenditure in twenty-eight years since 1851, with table of average cost per child	209-12
— results of education of children in the poor law schools of all classes; numbers returned on account of misconduct; percentage of numbers in prisons and reformatories who have been brought up in workhouse schools, 3·2 per cent.	212-16
— particulars regarding the condition in life of boys and girls from the schools, from reports by Mr. Bowyer, Mrs. Nassau Senior and others, 1872-77	216-19
The Future: objections to the district schools, as wanting the individual and family element, physically and morally, generating certain outbreaks of disease, teaching useless industries, &c.	220-22
— low death-rate, but high sickness rate, in these schools in ophthalmia, skin disease, &c.	223-4
— a false economy attempted in cost of management; and the remedy, to break them up into smaller and more manageable bodies, as colonies or village homes at Mettray, &c.	224-6
— average cost of children, &c., at various home institutions	226-7
— educational standards of elementary instruction, list of subjects, &c.	228-30
— army and navy training schools, and casual children	230-31
— summary and conclusion, in favour of the family system	231-3
Appendix, <i>tables</i> , number of children, and parliamentary grant for teachers, 1857-58	235
— cost of the metropolitan poor law schools	236-9
— returns of children sent back to workhouses	240-41
— young offenders admitted to and discharged from reformatory schools, 1854-76, and number who have been in workhouses, 1868-77	242-3

## Discussion on Dr. Mouat's Paper:

Chadwick (Edwin)

Error of Dr. Mouat's doctrines in favour of the smaller schools—the larger the school the greater being the power of classification and supervision; and with greater economy; small percentage of failures in a class stunted and half idiotic; the large institutions more children's sanitary hospitals, and not productive of disease	244-5
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	PAGE
MOUAT (Frederic J., M.D.). <i>Discussion on his Paper—contd.</i>	
Chadwick (E.) note	
The treatment of pauper children on a large scale in respectable houses first proposed in 1833. <i>Table</i> illustrative of school organisation for augmentation of efficiency with reduction of expense, reducing total cost per head from forty scholars at 16 <i>l.</i> 10 <i>s.</i> , to seven hundred at 4 <i>l.</i>	245-6
Hurst (George)	
His experience was that in workhouse schools the children were in general well taught and trained	247
Tuffnell (E. C.)	
Opinions of the Social Science Congress and the London School Board in favour of large schools; their low death-rate compared with that for the whole metropolis	247
Müller (Miss)	
Objection to raising the status, emoluments, and qualifications of the teachers, as unfitting them for elementary teaching	248
Bourchier (Captain)	
Agreed with Dr. Mouat's suggestions	248
Holgate (Wyndham)	
Boarding out only applicable to the class of orphans and deserted children of 9 or 10 years; benefits of physical education; the three R's and industrial training sufficient for the poor law schools	248
Balfour (Graham)	
Attention to proportions of ages required in making comparative rates of mortality; the introduction of swimming into the Duke of York's School	249
Doxsey (I.)	
Ophthalmia prevalent in south metropolitan district schools; suggestion that if taught in large numbers the children should live together in small	249
Guy (W. A.)	
Recent sanitary improvements at Christ's Hospital, and lower death-rate there; probable benefits of consolidating workhouses, on the example set by the government in prisons	249-50
Mouat (Dr.), reply:	250
MOUAT (Frederic J., M.D.). <i>Note on the Tenth Census of the United States of America</i>	573
Historical retrospect of the previous nine censuses, and comparison of the powers of our parliament with those of the federal government	573-5
Imperfection of the old census from the collection of industrial statistics by the enumerators, now entrusted to experts	575-6
Supplementary returns of deaths obtained from the medical profession	577
Population of the States from 1790 to 1870, showing increase per cent. in each decade	577
— ditto of slaves and free coloured	578
Disturbing elements of increase of Chinese, and fluctuation of immigration	579-80
Probable decrease of the coloured population since the extinction of slavery, from widening the field for white labour and enterprise	579
Mixed national character of the emigrants to America, and curious problem as to which will predominate in the new national type to be fused from them	580
Cost of the several censuses of the States	581
Far seeing policy of the munificence shown by the federal government in their publication of reports	581
Schedules of the new census returns, with remarks by the superintendent, General Walker; working of his bureau, &c.	582-7
— appendix, tenth census: Forms 1 to 3, products of industry, financial condition of cities, and statistics of wool manufactures	588-96
— Forms 4 and 5, mortality statistics and sanitary authority	597-602
<i>Discussion on Dr. Mouat's Paper:</i>	
Walford (Cornelius)	
Made a comparison between the intelligence and interest shown in the American census, and the want of wisdom in our own parliament in the same matter; valuable tables for life assurance of the United States insurance companies	602-3
Hall (E. Hepple)	
Could endorse the remarks as to the clearness, simplicity, and judgment of the forms prepared for the Statistical Bureau at Washington, but he took great exception to the matter of working, from the general tendency to exaggeration in the States	603-4
Mouat (Dr.), reply	604



	PAGE
MULHALL (M. G.). "Progress of the World in Arts," &c., 1880 (notice) . . . . .	391
MÜLLER (Miss). <i>Remarks</i> against raising the qualifications of teachers, as unfitting them for elementary teaching . . . . .	248
NEISON (F. G. P.). "Report on Accidents in Mines and Railways" (notice) . . . . .	390
NEUMANN-SPALLART. "Production und Handel," 1879 (notice) . . . . .	390
NEWMARCH (William). <i>Remarks</i> in discussion (Bevan on Strikes) . . . . .	61
NORWAY. "Annuaire Statistique" (notice) . . . . .	143
OATS, chief part grown in Scotland and Ireland, 72 per cent. to 7½ per cent. in England . . . . .	287
OFFENCES. See <i>Criminal Offences</i> .	
PALGRAVE (R. H. I.). "Bank-Rates in 1844-78" (notice) . . . . .	382
PATTERSON (R. H.). <i>Is the Value of Money Rising in England and throughout the World? With Remarks on the Effect of the Fluctuating Conditions of Trade upon the Value of Money</i> . . . . .	1
Adam Smith's opinion that the fall in the value of the precious metals in the seventeenth century had been stopped in the eighteenth by the contemporaneous increase of requirements for it . . . . .	1
Report of the United States' Commission in 1876, that there had been no fall in the value of silver . . . . .	2
Question whether the altered value of money is due to supply or demand, &c. Money and prices in Great Britain: notice of tables of prices available for determining the question . . . . .	2-3
— the fall of prices since 1873 equal to 24½ per cent., showing corresponding rise in the value of gold . . . . .	3
— gold price of silver in 1850, 59½d., rising during next twenty years to 62d., returning in 1873 to 59½d., and falling in panic of 1876 to 48d.; since which it has kept the level of 51½d. (13½ per cent. below that of 1872) . . . . .	3-4
— no depreciation in the value of silver, as its fall compared to gold is 11 per cent. below rise in value of gold compared with general commodities . . . . .	4
Money and prices in India: the 160 millions of silver poured into India since 1855, still inadequate for meeting the increased use of coin as currency, in place of barter, &c. . . . .	4
— fall of prices in India since 1872, as shown in cotton and saltpetre, and the purchasing power of the rupee as great as before, in spite of the lower price of silver . . . . .	5
— causes independent of the supply of metals which produce a change of prices . . . . .	6-7
Prices chiefly influenced during the last thirty years by the steam engine and the gold mines; the first raising them in remote places, and lowering them in the great towns; and the latter raising them in the hearts of commerce; the two giving a tide-like change . . . . .	8
The produce of the mines, and the state of trade, the two great factors influencing prices . . . . .	8
— total production of the mines, the same now as in 1852-60, but gold only two-thirds, and silver nearly double in amount . . . . .	9
— great fall of prices after the crises of 1857 and 1866, and the depression of 1879 (discrepancies in the tables rendering perfect accuracy hopeless) . . . . .	9-10
— the effects of depression of trade in increasing the purchasing power of money, but lowering the rate of discount, explained . . . . .	(and note)
— more money required to carry on the same amount of trade when prosperous than when falling (from higher prices) . . . . .	10-11
Production and employment of the precious metals: great reduction of their value by demonetisation, which will probably increase . . . . .	12-13
— rise in value of gold from recent demonetisation of silver . . . . .	13-14
— erroneous character of arguments in favour of the latter, and of a single gold standard . . . . .	14
Summary and conclusion: the state of prices so much affected by the state of trade, as to be no proof of the value of money . . . . .	15-16
— the value of money rising both in the east and west, from diminished gold supply and demonetisation of silver . . . . .	16
The subject at home: recent steady increase of the Bank of England note circulation, principally from increase in branch banks, requiring supplies of them . . . . .	17-18
— simultaneous increase of the employment of bank cheques . . . . .	18-20
Rise of the bank-rate: <i>tables</i> showing the amounts of coin in the bank on occasions of a 5 per cent. rate, 1844-78, and their gradual increase from 9½ to 26 millions . . . . .	(and note)
	19
	21-2

	PAGE
PATTERSON (R. H.). <i>Is the Value of Money Rising?—contd.</i>	
Rise of the bank-rate: recent quicker action of the bank in raising its rate compared with the stock of gold, and its treatment of home and foreign drains alike	22
Bimetallism, recognised by the Bank Acts; increasing annual absorption of gold into our currency, which may produce a scarcity of it	22-3
Total amount of gold and silver coined at the mint, 1843-65, and light coin withdrawn	23
Appendix A. Absorption of silver in India, 1851-75: Indian trade balances, and how settled	24-5
— B. Table of prices, and the bank-rate, 1845-79	26
Discussion on Mr. R. H. Patterson's Paper:	
Cohen (L. L.)	
Instances in the United States and in Europe of the effects of the change from paper to gold currency not referred to in the paper. Prospective public works expenditure in France to the extent of 132 millions sterling, and in other countries, creating a great absorption for money	27-8
Hoare (Henry)	
Supposed amount of gold in circulation about 1,200 million pounds and large amount of this (200 millions) absorbed and brought into fresh quarters by the French government, Germany, and the United States	28
Bourne (Stephen)	
Failure of Mr. Patterson to show that the alteration of prices really substantiated any increase in the value of money, illustrated by changes of prices in India, the value of silver 22 per cent. (not 11) less compared with gold, than of gold compared with other commodities; no fear of a metallic scarcity in America or England, from the exchange of securities and increased banking facilities of cheques, &c.	29-30
Giffen (Robert)	
Necessity for a general survey of several cycles of prosperity and adversity in judging as to fall or rise in prices; present scarcity of bullion in the world, and large exportation to America; the annual consumption of gold in the coinage not above 2 millions per annum; enormous consumption of silver by India in the cotton famine; objection to bimetallism	30-32
Walford (Cornelius)	
The value of money much affected by good and bad harvests, and in other countries by legislative interference; bullion only one element in the mercantile transactions of the world	33
Brassey (Thomas, M.P.)	
Our selection of a gold standard justified by experience in fluctuation of prices; effect of the demonetisation of silver in Germany in lowering its value in India; the demand for commodities increased during rise of wages	33-4
PAUL (H. Moncreiff). <i>Remarks in discussion</i> (Welton on English Rates of Mortality)	91-2
PESCHEL (O.). "Europäische Staatenkunde" (notice)	387
PLAGUE. Chronological table of the principal plagues on record	636-41
the oriental plague in its social, economical, political, and international relations (see <i>Potter</i> )	605
historical notices of outbreaks of, in Europe and England	606-13
its relations with typhus	611
of LONDON, great, 1664, notice of	610
— tables of the mortality of	633
of MARSEILLES, 1720, notice of	610
POCHIN (H. D.). <i>Remarks on the unsatisfactory character of arbitration in strikes</i>	64
POLICE ACT of 1857 the commencing point of our judicial statistics	423-4
POLICE FORCE, increased proportion of, to population, 1857-78	425
POOR. See <i>Education of Children of</i>	
POPULATION. <i>The Population of the Earth</i> [from the "Times" of 21st September, 1880]	690
Notice of Behm and Wagner's valuable "Bevölkerung der Erde," as the great fountain of all other statistical works	690
Enumeration of censuses taken since 1877, and of those about to be taken	691
Total population of the world 1,456 millions; population of each country	691-2
Population of the Eastern States of Europe and of the Turkish Empire, the results of calculation (Turkey in Europe and Asia, 25 millions)	692-3

	PAGE
<b>POPULATION.</b> <i>The Population of the Earth—contd.</i>	
Population of Russia based on statistics in some instances trustworthy, and in others not reliable, 88,000,000	693
Asiatic States (China, 434½ millions, British Possessions 240¾ millions) Indo-Chinese Peninsula, East India Islands, Australia and Polynesia	694-5
African and American populations	696-7
<b>POPULATION of ENGLAND and WALES.</b> On the increase of population in England and Wales (see <i>Williams</i> )	462
— diagrams of increase of	496
— in decades 1801-71	464
of GREAT BRITAIN, <i>table</i> showing average diminution of rate of increase per decade	474-5
— <i>tables</i> showing increase or decrease per cent. of large and small towns, rural districts, &c.	476-90
of GREAT BRITAIN and LONDON, estimated for 310 years	493-6
of TOWNS. <i>Tables</i> of percentage increase of each class of town, 1801-71	500-502
— question of decrements in rates of increase in large towns	469-70
— future increase of, with estimates for 1881 census (26 millions)	471-4
of LONDON, its future increase	475
<b>POPULATION of RUSSIA.</b> <i>The Movement of the Population in Russia during the Years 1867-70</i> [from the "Journal de St. Pétersbourg"]	356
Excess of births over deaths at a rate which would double the population in fifty-eight years	356
Districts with highest birth-rate, compared with birth-rate in other European countries	357
Illegitimate births, greater in north, than in south of Russia	358
Death-rate high, compared with other European States, and deaths most numerous in spring and summer; high rate due to deaths among infants under 1 year	359-60
Marriages, proportion at different ages, and comparison with other countries.	361-4
<b>POTTER (Henry Percy).</b> <i>The Oriental Plague in its Social, Economical, Political, and International Relations, special Reference being made to the Labours of John Howard on the subject</i>	605
Preface: infrequency of epidemics of the plague	605
Historical sketch: antiquity of the plague, first described succinctly by Thucydides and Lucretius as breaking out in Athens in 428 B.C.	606
— notice of the successive outbreaks of oriental plague in Europe and England, from A.D. 167	607-13
— black death, 1348, sweating sickness, 1489, great plague of London, 1664, plague of Marseilles, 1720	607-10
— relations of plague with typhus	611
— German and British commission to inquire into the outbreak of 1788 in the Volga	613
Short review of Howard's biography and labours	613-16
Conditions under which the plague arises; early opinion as to actual influences and telluric changes; contagion; absence from England since end of seventeenth century; list of conditions under which it may arise	617-20
— offensive filthy condition as at present in Cairo, London at the time of the plague, and of Ireland before the fever of 1797	621-2
Socially, religiously, and politically considered: bad treatment of the sick by nurses and watchmen; doubtful good of quarantine, and forced shutting up of healthy people; state of London in its desertion by the wealthy, and details of its sufferings	622-7
— cruel conduct towards the Jews; vices of the Flagellants; abandonment of their wealth by merchants to the Church, &c.	627-30
Internationally considered: beneficial results of rigid quarantine and hygienic measures	630-33
Appendix: <i>tables</i> of the mortality of the plagues of London, and of the black death of the fourteenth century	633-5
— chronological <i>table</i> of the principal plagues on record	636-41
— list of works referred to	642
<b>POWELL (G. Baden).</b> On "Protection and Bad Times" (notice)	391
<b>POWER (E.).</b> <i>Remarks</i> on the consumption of wheat	332-3
<b>PRICES</b> in Great Britain, notice of tables of, fall, &c.	3-4
— <i>tables</i> of, with the bank-rates, 1845-79	26
— great fall of, after crises of 1857 and 1866, and depression of 1879	9-10

	PAGE
PRICES— <i>contd.</i>	
on the rise and fall of (see <i>Patterson</i> ) . . . . .	1
produce of mines and state of trade the two great factors influencing . . . . .	9
in INDIA, fall since 1872, causes, &c. . . . .	5-8
wholesale in London, 1867-79 . . . . .	354
<i>table</i> of consols, provisions, coal, and pauperism, 1877-79 . . . . .	161
of CORN and other food, probable course of, from reduction of cost of transport in America; its import to European food producers, and means of meeting it, by attention to green crops, freeing the land from heavy cost of transfer, settlements, &c. . . . .	560-70
PRISONS, commitment to, and recommitments . . . . .	443-4
age, education, and nationality of prisoners . . . . .	444-6
PUNISHMENT. See <i>Crime</i> .	
(CAPITAL). See <i>Death</i> (punishment of).	
PURDY (Frederick). See <i>Taxation</i> (local returns, 1878-79).	
RAILWAYS. <i>Ten Years' Railway Statistics</i> [from the report of Mr. Calcraft and Mr. Giffen to the Board of Trade on Railways in 1879] . . . . .	521
Ten years' increase of mileage (17 per cent.), capital (38 per cent.), traffic (44½ per cent.), working expenses (53 per cent.), and net earnings (36 per cent.), compared . . . . .	521-2
Capital and mileage: more rapid increase of the former, from 34,000 <i>l.</i> to 40,000 <i>l.</i> per mile open; and diminution of proportion of ordinary to total capital . . . . .	522-3
Traffic receipts: changes in proportion, between those from passengers and goods explained; great increase in third class traffic, and in minerals . . . . .	523-5
Working expenses: great percentage increase, from greater costliness of work, with analyses of the increase in detail of items of cost, 1869-79 (highest in 1874) . . . . .	525-31
— addition of 1 <i>d.</i> expense per train mile, equal to 1 million pounds, on all the railways of the United Kingdom . . . . .	527, 531
RAWSON (Sir R. W.). <i>Remarks</i> on "Conseils des Prud'hommes" . . . . .	55
<i>ditto</i> (Welton on English Rates of Mortality) . . . . .	{ 84-7 93
<i>ditto</i> (Balfour, Vital Statistics of Cavalry Horses) . . . . .	271
<i>ditto</i> (Levi on Criminal Offences) . . . . .	456-8
<i>ditto</i> (Williams on Population) . . . . .	497
<i>tables</i> of percentage increase of each class of town, 1801-71 . . . . .	500-502
<i>remarks</i> at anniversary meeting, 1880 . . . . .	417
READ (Clare Sewell). <i>Remarks</i> in discussion (Craigie, and Lawes and Gilbert's Agricultural Statistics) . . . . .	337-9
REED (Sir C.). See <i>School Board</i> .	
REGISTRATION of marriages, births, and deaths:	
serial <i>tables</i> , 1873-79 . . . . .	159
divisional <i>tables</i> , 1879 . . . . .	163
annual rate per 1,000, 1873-79 . . . . .	160
<i>ditto</i> , Scotland	
(serial, average, bastardy, and divisional <i>tables</i> ) . . . . .	166-9
summary of Great Britain and Ireland, 1879 . . . . .	169
RENT, changes in amount, 1869-78 . . . . .	304-6
REVENUE of the United Kingdom, net produce in years and quarters ending:	
31st December, 1876-79 . . . . .	178
RINK's "Danish Greenland," reference to . . . . .	514
RUSSIA. See <i>Population</i> of Russia, 1867-70.	
see <i>Population</i> of the Earth.	
SAUNDERS (C. E.). <i>Remarks</i> on the general paralysis of the insane as due to sexual excess . . . . .	

SAUNDERS (C. E.). *Remarks* on the general paralysis of the insane as due to sexual excess . . . . .



	PAGE
SCHOOL BOARD. <i>Ten Years' [Results] of the London School Board</i> [report read by the chairman, Sir C. Reed] . . . . .	670
Satisfactory results of the work of the Board in an increase of school accommodation in conjunction with the voluntary schools, from 39 per cent. in 1871, to 66 per cent. in 1880, of the population of school age . . . . .	670-71
New schools during the past year, and their cost per head; average attendance greater than in the voluntary schools; attained by exercise of the compulsory power, which has since been extended to the whole population of England and Wales . . . . .	671-3
Classes of children at the schools; impossibility of a variety in the average fee charged; the religious instruction not objected to by the parents . . . . .	674-5
Progress of elementary education shown in the percentage decrease of marriage registers signed with marks from 11 to 8, and 24 to 12, in men and women respectively . . . . .	675
Charge of over education groundless, 26 per cent. only attaining the upper standards . . . . .	675-6
Specific subjects, necessity for their variety to avoid monotony; cookery, needlework, drilling, swimming, singing, and kindergarten . . . . .	676-7
Library scheme, rewards and scholarships, in connection with the city charities . . . . .	677-8
Half-time schools, blind, deaf and dumb, truant school, system of centre teaching . . . . .	679-80
Expenditure in salaries, books, furniture, rent, &c. . . . .	681
Selection of teachers by local committees of management . . . . .	681-2
SCHOOLS (ARMY AND NAVY) training . . . . .	230-31
— see <i>Ships</i> (training).	
(REFORMATORY). <i>Tables</i> of young offenders admitted and discharged, 1854-76, and number who have been in workhouses . . . . .	242-3
(WORKHOUSE). <i>Tables</i> of children at, their cost, &c. . . . .	235-41
— average cost of children at various homes connected with . . . . .	226-7
— account of them, and of separate, certified, and district schools in connection with them . . . . .	193-209
— objections to the district schools, high rate of sickness in them, &c. . . . .	220-24
— reduced expense, with greater efficiency of them, by collection in large institutions . . . . .	244-6
— particulars regarding condition in life of boys and girls from . . . . .	216-19
SHAW (Captain). See <i>Fires</i> of London.	
SHEEP. <i>Tables</i> of their increase or decrease, 1870-79 . . . . .	294-6
SHIPPING. Tonnage of vessels, foreign countries and British possessions, 1877-79 . . . . .	174
SHIPS (training). The "Goliath" and the "Exmouth," destruction of the first by fire, and admirable training then shown . . . . .	199-202
SHIPWRECKS. <i>Lloyd's Statistics of Marine Casualties for 1879</i> . . . . .	365
Comparison of numbers, lives lost, collisions, &c., in sailing vessels and steamers, with 1866-78 and 1872-78 . . . . .	365-7
<i>Tables</i> showing number of wrecks and casualties to sailing vessels and steamers in 1879, compared with those for thirteen previous years, with results to ship and cargo, salvage services, crews saved or drowned, lives lost, and respective percentages . . . . .	368-79
SILVER, variations in gold price of, since 1850. . . . .	4
rise in value of in 1879 . . . . .	106
imports and exports to the East, 1867-79 . . . . .	352
absorption of, in India, 1851-75 . . . . .	24-5
in India, the 160 millions poured into India since 1855 inadequate for meeting the increased use of coin as currency there . . . . .	5
SPAIN. "Censo de Espana," 1877 (notice) . . . . .	143
SPON (E. and F.). "The Iron and Steel Trades in 1879" (notice) . . . . .	384
STATISTICAL SOCIETY, comparisons of the present condition of the Society with those of previous years . . . . .	406-7
report of the Council, June, 1880 . . . . .	405
abstract of receipts and payments for 1879 . . . . .	414-15
proceedings of the forty-sixth anniversary meeting . . . . .	417-22
proceedings at ordinary meetings, and titles of papers read, 1879-80 . . . . .	408-10
list of deceased Fellows during 1879-80 . . . . .	412
inaugural address of the President, November, 1880 (see <i>Caird</i> ) . . . . .	559

	PAGE
STATISTICS of agriculture. See <i>Agriculture</i> .	
of railways. See <i>Railways</i> .	
STRIKES (The) of the past ten years (see <i>Bevan</i> ) . . . . .	35
number and enumeration of the principal causes of, in the past ten years . . . . .	37-8
<i>tables</i> of, in each trade, in counties and special towns, time spent, &c. . . . .	39-47
<i>tables</i> of losses in wages in . . . . .	48-50
arbitration in, by Conseils des Prud'hommes, &c. . . . .	52-4
SWEATING sickness in 1489 (notice of) . . . . .	609
TALLACK (William). <i>Remarks</i> in discussion (Levi on Criminal Offences) . . . . .	460
TAXATION. <i>Local Taxation Returns</i> . [Memorandum by Mr. Frederick Purdy for 1878-79] . . . . .	683
Total raised by local taxation, 1878-79, 30 $\frac{1}{10}$ millions . . . . .	683
<i>Tables</i> of poor rates, county and police, and metropolitan management and sanitary rates, &c. . . . .	684
— tolls, dues, fees, and rents, and city of London taxes on coals, wine, and grain . . . . .	685-6
— local loan outstanding, 1878-79 . . . . .	686
TELEGRAPHY. <i>Ten Years' Telegraphy</i> [from the "Times" of 26th October, 1880] . . . . .	687
Judicious investment by the country in the business of the old telegraph companies, shown by the increase of offices, miles of telegraph wires, and persons employed . . . . .	687-8
Pneumatic tube, its increased use, and advisable extension as a pneumatic post for closed telegrams . . . . .	688-9
Increase of telegrams by the post office, from 6 $\frac{1}{2}$ millions to 26 $\frac{1}{2}$ millions, and corresponding increase in revenue, yielding 4 $\frac{1}{2}$ per cent. on the capital expended in the service . . . . .	689
TRADE, <i>tables</i> of imports and exports, 1877-79 . . . . .	171
<i>table</i> of exports of foreign and colonial produce . . . . .	170
effect of the fluctuating condition of, upon the value of money (see <i>Patterson</i> ). . . . .	1
depression of, effects in increasing the purchasing power of money, but lowering rates of discount . . . . .	10-11
revival, see <i>Commerce</i> .	
TRAINING of the children of the poor (see <i>Mouat</i> ) . . . . .	183
see <i>Education</i> .	
see <i>Ships</i> (training).	
TUFFNELL (E. C.). <i>Remarks</i> in favour of large workhouse schools . . . . .	247
TURKEY. See <i>Population</i> of the Earth.	
UNITED STATES. See <i>Census</i> .	
see <i>Population</i> of the Earth.	
VANDENBERG (N. P.). On "Production and Consumption of Coffee" (notice) . . . . .	391
VANDERBYL (Philip). <i>Remarks</i> in discussion (Bevan on Strikes) . . . . .	62
<i>ditto</i> . <i>Remarks</i> in discussion (Welton on English Rates of Mortality) . . . . .	91
VEGETABLES and green crops, necessity for greater attention to, in England, to meet the low price of corn from America . . . . .	564-5
VESSELS, losses of. See <i>Shipwrecks</i> .	
VITAL STATISTICS. See <i>Horses</i> (Cavalry).	
WALFORD (Cornelius). <i>Remarks</i> in discussion (Patterson on the Value of Money) . . . . .	33
<i>ditto</i> (Welton on English Rates of Mortality) . . . . .	89-90

	PAGE
WALFORD (Cornelius). <i>Remarks in discussion—contd.</i>	
<i>ditto</i> , on the injuries to trade caused by strikes . . . . .	62
<i>ditto</i> (Balfour; Vital Statistics of Cavalry Horses) . . . . .	272
<i>ditto</i> , on Statistics of Food in the Society's <i>Journal</i> . . . . .	336
<i>ditto</i> , on the effects of education on the nature of crime (Levi on Criminal Offences) . . . . .	459
<i>ditto</i> (Williams on Population) . . . . .	504
<i>ditto</i> (Mouat on the United States Census) . . . . .	602-3
WALKER (General). Working of his bureau for the United States Census returns . . . . .	582-7
WELTON (Thomas A.). <i>On Certain Changes in the English Rates of Mortality</i> . . . . .	65
Regularity of the variation of death-rate, and its nature, in the graduation of death-rates at the several periods of life . . . . .	65
Variability of detail, and possibility of the modification of rates . . . . .	66
Tables of rates, 1846-75, showing continuous reduction at ages 5—25, increase amongst males and females in later years at ages 35—75 . . . . .	66-8
Extent of the changes in mortality: the census returns as to ages to be amended, unregistered births discoverable, and results of migrations may be measured . . . . .	69
Tables of survivors, male and female, showing increase of excess of female expectation of life from two in 1856-60, to five years 1871-75; variations of average mortality of the English people since 1841, &c. . . . .	70-73
Tables of deaths per 1,000 in next five years at each age; experience of 1841-75, relative female death-rate, &c. . . . .	74-7
Causes of the increased mortality amongst males aged 35—65, tables of disease, and <i>ditto</i> in large towns and rural divisions . . . . .	78-80
Increase of lung disease in the manufacturing districts . . . . .	79-81
Table of annual death-rate among males, 1851-75, from specified diseases . . . . .	82
Summary: increase in death-rate, chiefly among males at the higher ages . . . . .	83
<i>Discussion on Mr. Welton's Paper:</i>	
Rawson (Sir R. W.)	
Suggestions for the supply of omissions in the paper as to proportions, and the grounds of the author's conclusions on registration, census deficiencies, and migration; increased vitality in young people during 1846-75, but its decrease in middle age; comparison of the tables with those of Dr. Farr; increasing prospect of life among child-bearing women; probable causes of the improved vitality among children . . . . .	84-7
Bailey (A. H.)	
Disagreed with Mr. Welton's conclusions, and thought his data insufficient; the result of his own investigations was that there had been no change in the rate of mortality in 1840-70; disturbing element of emigration in calculating rates of mortality . . . . .	88
Doxsey (Rev. I.)	
Improvement in death-rate in females compared with males, and difficulties attending the search for causes of the increased death-rate of the latter after 25 years of age . . . . .	88-9
Walford (Cornelius)	
The fact stated in the paper that the death-rate up to 25 had lessened, and beyond that age much increased, particularly amongst males, not accounted for in any way, except partially by drunkenness and emigration of the young and strong . . . . .	89-90
Humphries (N. A.)	
From the increased aggregation in towns, a stationary mortality is evidence of good sanitary work; the increased mortality among males aged 35—65 beyond dispute . . . . .	90-91
Vanderbyl (Philip)	
Thought the increased mortality of males was from use of machinery and dangerous occupations; the improved rates among females from use of chloroform in child-births; great danger to mothers of male births . . . . .	91
Paul (H. Moncreiff)	
No circumstances stated in the paper as accounting for the higher mortality, but the tables pointed to increase in brain and heart diseases as probable causes . . . . .	91-2
Bourne (Stephen)	
The deferred age of matrimony among males, and their consequent pursuit of pleasure and dissipation, the probable causes of the increased rate of mortality; contrasted with easier circumstances and less labour among females . . . . .	92

	PAGE
WELTON (Thomas A.). <i>Discussion on his Paper—contd.</i>	
Saunders (C. E.)	
General paralysis of the insane due to sexual excesses . . . . .	93
Rawson (Sir R.)	
Increase in annual death-rates from particular diseases as given in the paper, the average from all causes being 22 per cent. . . . .	93
Lawson (Robert)	
Difficulty in judging as to increase of diseases owing to alterations in nomenclature; mortality among single twice that among married men . . . . .	93
Hamilton (Rowland)	
Death-rate of males of marrying age in feeble health added to the class of bachelors . . . . .	94
Welton (Thomas A.), reply:	
Potent causes of diseases: drink, hard work, and excitement; deaths by accident a fraction to that occasioned by disease . . . . .	94
WESTERGAARD (Harald), of Copenhagen. <i>Mortality in Remote Corners of the World</i> [Faroe Islands and Greenland] . . . . .	509
Distinctness of the classes of population in Denmark and its islands . . . . .	509
The Faroe Islands; description of their climate, productions, and exports . . . . .	509
— population, censuses 1855-70, marriage-rate, small amount of illegitimacy; Denmark one of the healthiest countries in Europe, and the mortality of the Faroe Islands less than in Denmark but for accidental deaths . . . . .	510-12
— infant mortality, and general rates of mortality highly favourable compared with Denmark and England . . . . .	512-13
— influence of seasons on mortality . . . . .	513
Greenland: Hans Egede's settlement there in 1721, and establishment of a royal trade monopoly. Reference to Rink's "Danish Greenland" . . . . .	514
— materials from which the rate of mortality, &c., is drawn; stationary numbers of the population now, migration within their own borders only; males above 60, 2 per cent., and females 2 to 3 per cent. of the population . . . . .	514-15
— large number of actual deaths compared with calculated rate for Denmark; large mortality from dangerous accidents and their miserable, filthy domestic life . . . . .	516
— actuarial calculation as to probability of life at different ages among the Greenlanders, with tables of comparison with the mortality of Denmark, and of experienced and calculated mortality . . . . .	517-20
— supply of food and mode of life in the different seasons . . . . .	520
WHEAT, on the home produce, imports, consumption, and price of, over twenty-eight harvest years, 1852-80 (see <i>Laves</i> and Gilbert) . . . . .	313
gazette average price of, 1873-79 . . . . .	343
see under <i>Agriculture</i> .	
large reduction in area of, during the last decade . . . . .	283-6
see under <i>Agriculture</i> (crops of 1880).	
WILLIAMS (R. Price). <i>On the Increase of Population in England and Wales</i> . . . . .	462
Table of population, 1700-1801, in decades, with percentage increase (4·97) . . . . .	462
Slight rise during the first half of the century, and effect of the invention of the spinning jenny and Watt's steam engine in promoting a great increase . . . . .	463
Population in decades, 1801-71, showing largest percentage (18·06) in 1811-21, and average decrement in rates of increase since, 6·09 . . . . .	464
Description of tables in appendix, and of those from which summarised . . . . .	465
Summaries of population, rates of increase in principal towns in decades, 1801-71 . . . . .	466-69
Decrements in rates of increase in town population, showing declining rate in most large towns, except London . . . . .	469-70
Population of towns between 2,000 and 20,000, and of rural districts; maximum increase in 1811-21, and decrement up to 1861-71 . . . . .	470
Future increase of the population, with estimate of the census of 1881 (26 millions), and increase in connection with the coal supply . . . . .	471-4
Future increase of population of London. List of tables and diagrams illustrating the subject . . . . .	475
Table of population of Great Britain, showing average diminution of rate of increase per decade . . . . .	474-5
Appendix of tables of population and of increase or decrease per cent. of large towns, small towns, rural districts, counties, and towns of 20,000 and upwards, 1801-71 . . . . .	476-90
— estimated consumption of coal in the United Kingdom for 310 years . . . . .	491-2



	PAGE
WILLIAMS (R. Price). <i>On the Increase of Population—contd.</i>	
Appendix of tables: estimated population of Great Britain and of London for 310 years . . . . .	493-6
Nine <i>Diagrams</i> of increase of population in England and Wales, of towns, &c., and estimated increase . . . . .	496
<i>Discussion on Mr. R. Price Williams's Paper:</i>	
Rawson (Sir R. W.)	
The decrease in the decennial increment due to an improvement in the enumeration of the population; relation of the four classes of towns to one another as to percentage increase; and calculation how far the augmentation of towns had arisen from excess of births over deaths, or from immigration from rural districts (with <i>tables</i> of percentage increase of each class of town, natural growth, and migration, &c., from 1801 to 1871) . . . . .	497-502
Bailey (A. H.)	
Small reliance to be placed on returns prior to 1801; errors of the "Northampton Table," through Dr. Price calculating on baptismal registers, and overlooking the great proportion of Baptists in the town; the early censuses trustworthy as to number; difficulties regarding immigration into England from Scotland and Ireland, and emigration to the colonies, United States, &c.; extension of London and Brighton . . . . .	502-3
Humphreys (N. A.)	
Probable maintenance of the rate of increment since 1871; correctness of previous estimates by Dr. Farr . . . . .	503
Walford (Cornelius)	
The problems connected with the population of the last century, affected by continuous wars, migration to America, &c.; little information to be obtained from books on population, except from that of Mr. Rickman in his report on the census of 1831; increased productiveness of nature after drains for great wars; effect of free trade and railways . . . . .	504
Hendriks (Frederick)	
Reference to Captain Graunt's work on population in 1662; singular accuracy of his estimates, based on the London and country mortality, $2\frac{1}{2}$ per cent., or 1 in $44\frac{1}{2}$ , which nearly agrees with the present mortality of England and Wales; error of Captain Graunt's prognostications as to rate of doubling of the population, from his not foreseeing the increase of urban populations and the manufacturing communities . . . . .	505-6
Hurst (G.)	
Probable arrest of the great increase of our population by prudence, poverty, and crime, hastened by our greater dependence on foreign supplies of food . . . . .	506
Bourne (S.)	
Probable greater rate of increase in the future, to be met by increased emigration to our extensive colonies . . . . .	506-7
Martin (John B.)	
The percentage of increase likely to be affected by greater correctness of future censuses; not account enough taken of the emigration and immigration across the channel . . . . .	507
Williams (Price), reply:	
Probability of a decremental rate, in spite of machinery, cheap food, and railways . . . . .	508
WOOL, prices and imports . . . . .	351-2
WORKS (literary). See <i>Books</i> .	

1011  
1012  
1013

(Corrected to 31st December, 1880.)

# STATISTICAL SOCIETY.

(FOUNDED 1834,)

SOMERSET HOUSE TERRACE (KING'S COLLEGE ENTRANCE),

STRAND, W.C., LONDON.

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## Contents.

	PAGE
COUNCIL AND OFFICERS .....	2
OBJECTS OF THE SOCIETY .....	3
CALENDAR FOR SESSION 1880-81 .....	4
PROGRAMME OF THE SESSION 1880-81 .....	5
HOWARD MEDAL OF 1881, SUBJECT OF ESSAY FOR..	6
LIST OF THE FORMER PATRON AND PRESIDENTS....	7
Do. FELLOWS .....	8
Do. HONORARY MEMBERS .....	43
INDEX TO RULES .....	48
RULES OF THE SOCIETY .....	49
REGULATIONS OF THE LIBRARY .....	53
DONORS TO THE LIBRARY DURING THE YEAR 1880..	54
COST OF BACK NOS. OF JOURNAL ( <i>if not out of Print</i> ).	60
ODD NUMBERS, PARTS AND VOLUMES WANTING IN	
THE LIBRARY .....	61
FORM OF BEQUEST .....	62

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Printers in Ordinary to Her Majesty.

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1881.

# STATISTICAL SOCIETY.

## Honorary President.

HIS ROYAL HIGHNESS THE PRINCE OF WALES, K.G.

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(having filled the Office of President).

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### Editor of the Journal.

ROBERT GIFFEN.

### Assistant Secretary.

JOSEPH WHITTALL.

**Bankers.**—MESSRS. DRUMMOND AND Co., CHARGING CROSS, S.W., LONDON.



## AN OUTLINE OF

## THE OBJECTS OF THE STATISTICAL SOCIETY.

THE *Statistical Society* of London was founded, in pursuance of a recommendation of the British Association for the Advancement of Science, on the 15th of March, 1834; its object being, the careful collection, arrangement, discussion and publication, of facts bearing on and illustrating the complex relations of modern society in its social, economical, and political aspects,—especially facts which can be stated numerically and arranged in tables;—and also, to form a Statistical Library as rapidly as its funds would permit.

The Society from its inception has steadily progressed. It now possesses a valuable Library and a Reading Room; ordinary meetings are held monthly from November to June, which are well attended, and cultivate among its Fellows an active spirit of investigation: the papers read before the Society are, with an abstract of the discussions thereon, published in its *Journal*, which now consists of 43 annual volumes, and forms of itself a valuable library of reference.

The Society has originated and statistically conducted many special inquiries on subjects of economic or social interest, of which the results have been published in the *Journal* or issued separately; the latest instance being the institution of the “Howard Medal” Prize Essay.

To enable the Society to extend its sphere of useful activity, and accomplish in a yet greater degree the various ends indicated, an increase in its numbers and revenue is desirable. With the desired increase in the number of Fellows, the Society will be enabled to publish standard works on Economic Science and Statistics, especially such as are out of print or scarce, and also greatly extend its collection of Foreign works. Such a well-arranged Library for reference, as would result, does not at present exist in England, and is obviously a great *desideratum*.

The Society is cosmopolitan, and consists of Fellows and Honorary Members, forming together a body, at the present time, of between *eight and nine hundred* Members.

The Annual Subscription to the Society is *Two Guineas*, and at present there is no entrance fee. Fellows may, on joining the Society, or afterwards, compound for all future Annual Subscriptions by a payment of *Twenty Guineas*.

The Fellows of the Society receive gratuitously a copy of each part of the *Journal* as published Quarterly, and have the privilege of purchasing back numbers at a reduced rate. The Library (reference and circulating), and the Reading Room, are open daily, for the convenience of Members.

Nomination Forms and any further information will be furnished, on application to the Assistant Secretary.

# CALENDAR FOR SESSION 1880-81.

1880	MON.	TUES.	WED.	THURS.	FRI.	SATUR.	SUN.	1881	MON.	TUES.	WED.	THURS.	FRI.	SATUR.	SUN.
NOV.	1	2	3	4	5	6	7	MAY	...	...	...	...	...	...	1
	8	9	10	11	12	13	14		2	3	4	5	6	7	8
	15	<b>16</b>	17	18	19	20	21		9	10	11	12	13	14	15
	22	23	24	25	26	27	28		16	<b>17</b>	18	19	20	21	22
	29	30	...	...	...	...	...		23	24	25	26	27	28	29
									30	31	...	...	...	...	...
DEC.	...	...	1	2	3	4	5	JUNE	...	...	1	2	3	4	5
	6	7	8	9	10	11	12		6	7	8	9	10	11	12
	13	14	15	16	17	18	19		13	14	15	16	17	18	19
	20	<b>21</b>	22	23	24	25	26		20	<b>21</b>	22	23	24	25	26
	27	28	29	30	31	...	...		27	28	29	30	...	...	...
1881 JAN.	...	...	...	...	...	1	2	JULY	...	...	...	...	1	2	3
	3	4	5	6	7	8	9		4	5	6	7	8	9	10
	10	11	12	13	14	15	16		11	12	13	14	15	16	17
	17	<b>18</b>	19	20	21	22	23		18	19	20	21	22	23	24
	24	25	26	27	28	29	30		25	26	27	28	29	30	31
	31	...	...	...	...	...	...								
FEB.	...	1	2	3	4	5	6	AUG.	1	2	3	4	5	6	7
	7	8	9	10	11	12	13		8	9	10	11	12	13	14
	14	<b>15</b>	16	17	18	19	20		15	16	17	18	19	20	21
	21	22	23	24	25	26	27		22	23	24	25	26	27	28
	28	...	...	...	...	...	...		29	30	31	...	...	...	...
MAR.	...	1	2	3	4	5	6	SEP.	...	...	...	1	2	3	4
	7	8	9	10	11	12	13		5	6	7	8	9	10	11
	14	<b>15</b>	16	17	18	19	20		12	13	14	15	16	17	18
	21	22	23	24	25	26	27		19	20	21	22	23	24	25
	28	29	30	31	...	...	...		26	27	28	29	30	...	...
APR.	...	...	...	...	1	2	3	OCT.	...	...	...	...	...	1	2
	4	5	6	7	8	9	10		3	4	5	6	7	8	9
	11	<b>12</b>	13	14	15	16	17		10	11	12	13	14	15	16
	18	19	20	21	22	23	24		17	18	19	20	21	22	23
	25	26	27	28	29	30	...		24	25	26	27	28	29	30
									31	...	...	...	...	...	...

The Ordinary Meetings of the Society, at which Papers are read and discussed, are marked in the Calendar above by Black Figures.

*The Chair will be taken at 7.45 p.m., precisely.*

Visitors may attend the Ordinary Meetings on the introduction of a Fellow.

## THE ANNIVERSARY MEETING

WILL BE HELD ON THE 28TH JUNE, 1881, AT 4 P.M.

## MONTHLY MEETINGS—SESSION 1880-81.

HELD ON THE

THIRD TUESDAY IN THE MONTHS OF NOVEMBER—JUNE.

*(Excepting April.)*


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Tuesday, Nov. 16.	Tuesday, March 15.
„ Dec. 21.	„ April 12.
„ Jan. 18.	„ May 17.
„ Feb. 15.	„ June 21.

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The Council have reason to expect that in the course of the Session the following Papers will, among others, be communicated to the Society :—

The PRESIDENT'S Inaugural Address. By JAMES CAIRD, Esq., C.B., F.R.S.

“Note on the Tenth Census of the United States of America.” By DR. F. J. MOUAT, F.R.C.S.

“The Growth of the Human Body.” By J. T. DANSON, Esq.

“The Methods of Electing Representatives.” By HENRY R. DROOP, Esq.

“The Influence of Expenditure on Intoxicating Liquors on the Trade and Commerce of the Country.” By WM. HOYLE, Esq.

“The Question of the Reduction of the Present Postal Telegraph Tariff.” By R. PRICE WILLIAMS, Esq., C.E.

“The Method of Statistics.” By WYNNARD HOOPER, Esq.

“The Comparative Taxation of the Principal European Countries.” By ROBERT GIFFEN, Esq.

“The Relative Mortality of Large and Small Hospitals; their advantages and disadvantages considered.” By H. C. BURDETT, Esq.

“The History and Statistics of the Irish Incumbered Estates Court, with Suggestions for a Tribunal with similar Jurisdiction in England.” By R. DENNY URLIN, Esq. (lately Examiner under “The Landed Estates Act—Ireland”).

“On the Development of the Hill Regions of India.” By HYDE CLARKE, Esq.

“A Statistical Chronology of the Plagues and Pestilences of the World.” By C. WALFORD, Esq., F.S.A.

## HOWARD MEDAL.

---

The following is the title of the Essay to which the Medal will be awarded in November, 1881. The Essays to be sent in on or before 30th June, 1881.

*“On the Jail Fever, from the earliest Black Assize to the last recorded outbreak in recent times.”*

The Council have decided to grant the sum of £20 to the writer who may gain the “Howard Medal” in November, 1881.

*(The Medal is of bronze, having on one side a portrait of John Howard, on the other a sheaf of wheat, with suitable inscription.)*

The following are the principal conditions:—

Each Essay to bear a motto, and be accompanied by a sealed letter, marked with the like motto, and containing the name and address of the author; such letter not to be opened, except in the case of the successful Essay.

No Essay to exceed in length 150 pages (8vo.) of the *Journal of the Statistical Society*.

The Council shall, if they see fit, cause the successful Essay, or an abridgment thereof, to be read at a Meeting of the Statistical Society; and shall have the right of publishing the Essay in their *Journal* one month before its appearance in any separate independent form; this right of publication to continue till three months after the award of the Prize.

The President shall place the Medal in the hands of the successful Candidate, at the conclusion of his Annual Address, at the ordinary Meeting in November, when he shall also re-announce the subject of the Prize Essay for the following year.

Competition for this Medal shall not be limited to the Fellows of the Statistical Society, but shall be open to any competitor, providing the Essay be written in the English language.

The Council shall not award the Prize, except to the author of an Essay, in their opinion, of a sufficient standard of merit; no Essay shall be deemed to be of sufficient merit that does not set forth the facts with which it deals, in part, at least, in the language of figures and tables; and distinct references should be made to such authorities as may be quoted or referred to.

Further particulars or explanations may be obtained from the Assistant Secretary, at the Office of the Society, King's College Entrance, Strand, London, W.C.



LIST OF THE FORMER  
**Patron and Presidents**  
 OF THE  
**STATISTICAL SOCIETY,**

*From its Foundation, on 15th March, 1834.*

**Patron.**

Period.

1840-61—HIS ROYAL HIGHNESS THE PRINCE CONSORT, K.G.

**Presidents.**

1834-36	The Most Noble the Marquis of Lansdowne, F.R.S.
1836-38	Sir Charles Lemon, Bart., M.P., F.R.S., LL.D.
1838-40	The Right Hon. the Earl Fitzwilliam, F.R.S.
1840-42	The Right Hon. the Viscount Sandon, M.P. (now Earl of Harrowby.)
1842-43	The Most Noble the Marquis of Lansdowne, K.G., F.R.S.
1843-45	The Right Hon. the Viscount Ashley, M.P. (now Earl of Shaftesbury.)
1845-47	The Right Hon. the Lord Monteagle.
1847-49	The Right Hon. the Earl Fitzwilliam, F.R.S.
1849-51	The Right Hon. the Earl of Harrowby.
1851-53	The Right Hon. the Lord Overstone.
1853-55	The Right Hon. the Earl Fitzwilliam, K.G., F.R.S.
1855-57	The Right Hon. the Earl of Harrowby, F.R.S.
1857-59	The Right Hon. the Lord Stanley, M.P. (now Earl of Derby.)
1859-61	The Right Hon. the Lord John Russell, M.P., F.R.S. (afterwards Earl Russell.)
1861-63	The Right Hon. Sir J. S. Pakington, Bart., M.P., G.C.B. (afterwards Lord Hampton.)
1863-65	Colonel W. H. Sykes, M.P., F.R.S.
1865-67	The Right Hon. the Lord Houghton.
1867-69	The Right Hon. W. E. Gladstone, M.P., D.C.L.
1869-71	W. Newmarch, Esq., F.R.S., Corr. Mem. Inst. of France.
1871-73	William Farr, Esq., M.D., C.B., D.C.L., F.R.S.
1873-75	William A. Guy, Esq., M.B., F.R.S.
1875-77	James Heywood, Esq., M.A., F.R.S., F.G.S.
1877-79	The Right Hon. George Shaw Lefevre, M.P.
1879-80	Thomas Brassey, Esq., M.P.

## LIST OF FELLOWS.

*Those marked thus \* have compounded for their Annual Subscriptions.*

*The names of Members of Council are printed in SMALL CAPITALS.*

Year of Election.	
1878	Abdur Rahman, Moulvie Syud, F.R.C.S. ( <i>Barrister-at-Law</i> ), 42, <i>Taltollah-lane, Calcutta, India.</i>
1876	Abrahams, Israel, F.R.G.S., 56, <i>Russell-square, W.C.</i>
1870	Absolon, Eugene, 12, <i>Wellington-square, King's-road, Chelsea, S.W.</i>
1862	Acland, Henry Wentworth, M.D., F.R.S., <i>Oxford.</i>
1869	Acland, Sir Thomas Dyke, Bart., M.P., F.R.S., <i>Sprydoncote, Exeter ; and Athenæum Club, S.W.</i>
1879	Adam, Robert ( <i>City Chamberlain</i> ), <i>City Chambers, Edinburgh.</i>
1867	Addison, John, 6, <i>Delahay-street, Great George-street, S.W.</i>
1873	*Airlie, The Right Hon. the Earl of, K.T., 36, <i>Chesham-place, S.W.</i>
1880	Aitchison, David, 5, <i>Pembridge-square, W.</i>
1876	Aitchison, William John, 2, <i>Princes-street, E.C.</i>
1879	Akers-Douglas, Aretas, M.P., J.P., <i>Chilston Park, Maidstone, Kent.</i>
1841	Aldam, William, F.R.S., <i>Frickley Hall, Doncaster.</i>
1876	Aldwinckle, Thomas Williams, 7, <i>East India-avenue, Leadenhall-street, E.C.</i>
1847	Alexander, George William, <i>The Willows, Church-street, Stoke Newington, N.</i>
1872	Alexander, Robert Henry, 24, <i>Lombard-street, E.C.</i>
1876	Allen, John T. R., <i>North Bailey, Durham.</i>
1875	Allen, Joseph, <i>St. Mildred's House, Poultry, E.C.</i>

Year of  
Election

- 1877 Allen, Joseph, (*West Riding Chambers*),  
21, *Waterhouse-street, Halifax, Yorkshire.*
- 1878 Anderson, A. F.,  
131, *Mount Pleasant, Liverpool.*
- 1878 Anderson, Edward C., M.A., M.D.,  
*Tow-Law, Darlington.*
- 1871 Anderson, Sir James, F.R.G.S., F.G.S.,  
66, *Old Broad-street, E.C.*
- 1871 Angus, R. B.,  
*Montreal, Canada.*
- 1834 \*Ansell, Charles, F.R.S.,  
92, *Cheapside, E.C.*
- 1872 \*Archibald, William Frederick A., M.A.,  
3, *Amersham-road, Putney, S.W.*
- 1871 Atkinson, George W.,  
1, *Regent-street, Barnsley.*
- 1870 Avery, Thomas,  
*Church-road, Edgbaston, Birmingham.*
- 1871 Axon, William E. A.,  
*Bank Cottage, Patricroft, Manchester.*
- 
- 1872 \*Babbage, Major-General Henry P.,  
*Dainton House, Bromley, Kent.*
- 1872 \*Backhouse, Edmund,  
*Middleton Lodge, Richmond, York.; Reform Club, S.W.*
- 1875 Baddeley, Samuel,  
*Freeland's-road, Bromley, Kent.*
- 1879 Baden-Powell, George S., M.A., F.R.A.S.,  
8, *St. George's-place, Hyde Park Corner, S.W.*
- 1855 BAILEY, ARTHUR HUTCHESON, F.I.A.,  
7, *Royal Exchange, E.C.*
- 1858 Baines, Sir Edward,  
*St. Ann's-hill, Burley, Leeds.*
- 1879 Baker, W. Mills,  
*Stoke Bishop, near Bristol.*
- 1878 Balfour, Arthur James, M.P.,  
4, *Carlton-gardens, S.W.*
- 1879 Balfour, Cecil Charles,  
7, *Park-square, Regent's-park, N.W.*
- 1848 Balfour, General Sir George, M.P., D.L., K.C.B.,  
6, *Cleveland-gardens, Bayswater, W.*
- 1873 Balfour, Jabez Spencer, M.P.,  
20, *Budge-row, Cannon-street, E.C.*
- 1865 BALFOUR, THOMAS GRAHAM, M.D., F.R.S.,  
*Coombe Lodge, Wimbeldon Park, S.W.*

Year of Election.	
1879	Bamber, Edward Fisher, C.E., 67, <i>Shaftesbury-road, Ravenscourt-park, W.</i>
1849	Bampton, James, 13, <i>St. James's-square, S.W.</i>
1877	Barbour, William B., 196, <i>Haverstock-hill, N.W.</i>
1873	Barham, Francis F., <i>Bank of England, Birmingham.</i>
1880	*Baring, Thomas Charles, M.P., <i>High Beach, Loughton.</i>
1878	Barr, John Coleman, L.R.C.P., <i>Cranmore Villas, Aldershot.</i>
1878	Barry, Francis Tress, <i>St. Leonard's-hill, Windsor.</i>
1879	Barry, Frederick W., M.D. ( <i>Sanitary Commissioner</i> ), <i>Nicosea, Cyprus.</i>
1872	*Bass, Michael Arthur, M.P., 101, <i>Eaton-square, S.W.</i> ; <i>Rangemore, Burton-on-Trent.</i>
1836	Bass, Michael Thomas, M.P., 101, <i>Eaton-square, S.W.</i> ; <i>Rangemore, Burton-on-Trent.</i>
1873	Bate, George, 10, <i>City-road, E.C.</i>
1877	BATEMAN, A. E., 1, <i>Whitehall, S.W.</i>
1877	Battye, Richard Fawcett, M.R.C.P., 123, <i>St. George's-road, S.W.</i>
1876	Baxter, Robert, 5 and 6, <i>Victoria-street, Westminster; S.W.</i>
1877	Bayfield, Arthur, 32, <i>Temple-row, Birmingham.</i>
1873	*Baynes, Alfred Henry, F.R.G.S., 19, <i>Castle-street, Holborn, E.C.</i>
1871	*Baynes, William Wilberforce, F.I.A., 32, <i>Moorgate-street, E.C.</i>
1877	Beadel, William J., <i>Springfield Lyons, Chelmsford.</i>
1875	*Beardsall, Francis E. M., 64, <i>Cross-street, Manchester.</i>
1878	*Beauchamp, The Right Hon. Earl, 13, <i>Belgrave-square, S.W.</i>
1875	*Beaufort, William Morris, F.R.A.S., F.R.G.S., &c., 18, <i>Piccadilly, W.</i>
1880	Beddell, Charles, 5, <i>Lothbury, E.C.</i>
1863	Beddoe, John, B.A., M.D., F.R.S., 2, <i>Lansdowne-place, Clifton.</i>
1872	*Bedford, His Grace, the Duke of, <i>Woburn Abbey, Oakley, Bedford.</i>
1879	Beggs, Thomas, <i>Hazeldene, Shortlands, Kent.</i>



Year of Election.	
1880	Bell, Isaac Lowthian, J. P., <i>Rounton Grange, Northallerton, York, N.R.</i>
1878	Bellew, The Right Hon. Lord, <i>Barmeath, Dunleer, Ireland.</i>
1856	*Beresford-Hope, The Right Hon. A. J., M.P., D.C.L., <i>1, Connaught-place, W.</i>
1879	BEVAN, GEORGE PHILLIPS, F.G.S., <i>Uplands, Richmond, Surrey.</i>
1875	Bevan, Thomas, <i>Stone Park, near Dartford, Kent.</i>
1869	*Beverley, Henry, <i>27, Theatre-road, Calcutta.</i>
1879	*Bickford-Smith, W., J.P., D.L., &c., <i>Trevarno, Helston, Cornwall.</i>
1866	Bikélas, Démétrius, <i>Athens, Greece.</i>
1877	Bishop, George Houlton, M.R.C.S., <i>Westbourne Green, Harrow road, W.</i>
1877	Boddy, Evan Marlett, L.R.C.P., ( <i>Lifford House, Dartford</i> ), <i>111, Camberwell-road, S.E.</i>
1873	Bogie, James, <i>5, Spence-street, Newington, Edinburgh.</i>
1860	Bohn, Henry George, F.R.A.S., F.L.S., <i>18, Henrietta-street, Covent Garden, W.C.; Twickenham.</i>
1877	Bolam, Harry George, <i>Little Ingestre, Stafford.</i>
1880	Bolton, Joseph C., M.P., <i>Carbrook, Larbert, Stirlingshire.</i>
1879	Borchardt, Louis, M.D., <i>Swinton House, Fallowfield, Manchester.</i>
1879	Bordman, Thomas Joseph Clarence Linden, <i>Victoria House, Trinity-street, Southwark, E.C.</i>
1875	Borthwick, The Right Hon. Lord, <i>Ravenstone, Whithorn, N.B.</i>
1871	BOURNE, STEPHEN, <i>H.M. Custom House, E.C.; Abberley, Wallington, Surrey.</i>
1877	Boutcher, Emanuel, <i>12, Oxford-square, Hyde Park, W.</i>
1860	Bovill, William John, Q.C., <i>32, James-street, Buckingham-gate, S.W.</i>
1876	Bowen, Horace George, <i>Bank of England, Burlington-gardens, W.</i>
1879	Bowley, Edwin, <i>Burnt Ash-hill, Lee, Kent.</i>
1880	Bowser, Wilfred Arthur, <i>72, Bishopsgate-street Within, E.C.,</i>
1874	BRABROOK, EDWARD WILLIAM, F.S.A., M.R.S.L., <i>28, Abingdon-street, S.W.</i>
1875	Braby, James, J.P., <i>Maybanks, Rudgwick, Sussex.</i>

Year of Election.	
1874	Bramley-Moore, John, D.L., <i>Gerrard's-cross, Bucks.</i>
1855	Brand, The Right Hon. Henry Bouverie William, M.P., <i>Speaker's Court, House of Commons, S.W.</i>
1873	BRASSEY, THOMAS, M.P., ( <i>Honorary Vice-President</i> ), 4, <i>Great George-street, S.W.</i> ; and 24, <i>Park-lane, W.</i>
1864	*Braye, The Right Hon. the Lord, 40, <i>Lower Grosvenor-street; Stanford Hall, Rugby.</i>
1876	Brodhurst, Bernard Edward, F.R.C.S., 20, <i>Grosvenor-street, Grosvenor-square, W.</i>
1874	Broom, Andrew, 104, <i>Grove-lane, Camberwell.</i>
1878	Brown, Alexander Hargreaves, M.P., 12, <i>Grosvenor-gardens, S.W.</i>
1872	Brown, James Bryce, F.R.G.S., 90, <i>Cannon-street, E.C.</i> ; and <i>Bromley, Kent.</i>
1875	Browne, Thomas Gillespie C., F.I.A., 11, <i>Lombard-street, E.C.</i>
1876	Bruton, Leonard, <i>St. Stephen's Buildings, Bristol.</i>
1865	Bunce, John Thackray, <i>Longworth, Priory-road, Edgbaston, Birmingham.</i>
1880	Burdett, Henry Charles, <i>Seamen's Hospital Greenwich, S.E.</i>
1873	*Burdett-Coutts, The Right Hon. the Baroness, 1, <i>Stratton-street, W.</i> ; and <i>Holly Lodge, Highgate, N.</i>
1872	Burns, The Rev. Dawson, M.A., 52, <i>Parliament-street, S.W.</i>
1874	Burr, William, 42, <i>Poultry, E.C.</i>
1877	Burrell, Alexander.
1880	Burt, Frederick, F.R.G.S., <i>Woodstock, Crouch End, N.</i>
1880	Caine, William S., M.P., 1, <i>The Terrace, Clapham Common, S.W.</i>
1857	CAIRD, JAMES, C.B., F.R.S., ( <i>President</i> ), 8, <i>Queen's-gate-gardens, South Kensington, S.W.</i> ; and <i>Cassencary, Creetown, N.B.</i>
1880	Caird, Robert Henryson, 6, <i>Petersham-terrace, S.W.</i>
1879	Campbell, Lord Colin, M.P., <i>Argyll Lodge, Kensington, W., and Inverary Castle.</i>
1874	CAMPBELL, SIR GEORGE, K.C.S.I., M.P., D.C.L., 13, <i>Cornwall-gardens, South Kensington, S.W.</i>
1877	Campbell, George Lamb, <i>Market-street, Wigan.</i>

Year of Election.	
1879	Campbell-Colquhoun, Rev. John Erskine, <i>Chartwell, Westerham, Kent.</i>
1862	Cape, George A., 8, <i>Old Jewry, E.C.</i>
1872	*Carillon, J. Wilson, F.S.A., F.R.G.S., <i>Wormhill, Buxton.</i>
1871	Carnac, Harry Rivett-, <i>Calcutta, Bengal, India.</i>
1876	Carphin, James Rhind, C.A., 137, <i>George-street, Edinburgh.</i>
1877	Carter, E. Harold, 33, <i>Waterloo-street, Birmingham.</i>
1848	Carter, John Bonham, 25, <i>Ashley-place, Victoria-street, S.W.</i>
1878	*Casley, Reginald Kennedy, M.D., <i>Northgate-street, Ipswich.</i>
1880	Castle, Robert, 18, <i>Merton-street, Oxford.</i>
1858	Chadwick, David, <i>The Poplars, Herne Hill, Dulwich, S.E.</i>
1834	Chadwick, Edwin, C.B., <i>Park Cottage, East Sheen, Mortlake, S.W.</i>
1869	CHADWICK, JOHN OLDFIELD, F.R.G.S., 2, <i>Moorgate-street, E.C.</i>
1875	Challen, George Caleb, <i>St. Mildred's House, Poultry, E.C.</i>
1880	*Chamberlain, The Right Honourable Joseph, M.P., 72, <i>Prince's Gate, S.W.</i>
1873	Charlesworth, Frederic, <i>Widmore, Bromley, Kent.</i>
1863	Charlton, W. H., <i>Hesleyside, near Hexham, Northumberland.</i>
1851	*Cheshire, Edward, 3, <i>Vanbrugh Park, Blackheath, S.E.</i>
1877	Child, Robert Carlyle,
1853	Chisholm, David, F.I.A., 64, <i>Princes-street, Edinburgh</i>
1862	Christie, Chancellor Richard Copley, M.A. 2, <i>St. James's-square, Manchester.</i>
1869	CHUBB, HAMMOND, B.A., (Secretary), <i>Bickley, Kent.</i>
1877	Clapham, Crochley, L.R.C.P., <i>Muriel House, Peak Hill, Sydenham, S.E.</i>
1849	Clark, Gordon Wyatt, <i>Mickleham Hall, near Dorking, Surrey.</i>
1856	Clark, Sir John Forbes, Bart., <i>Tillypronie, Tarland, Aberdeen.</i>
1871	Clarke, Ebenezer, jun., 52, <i>Cannon-street, E.C.</i>

Year of Election.	
1880	Clarke, Frederick Nevill, <i>Ecclesbourne, Thicket-road, Upper Norwood, S.E.</i>
1877	*Clarke, Henry, L.R.C.P., <i>H.M. Prison, Wakefield, Yorks.</i>
1876	Clarke, Henry Harcourt Hyde, <i>32, St. George's-square, S.W.</i>
1856	*CLARKE, HYDE, (Vice-President), <i>32, St. George's-square, S.W.</i>
1869	Cleghorn, John, <i>3, Spring-gardens, S.W.</i>
1850	*Cleveland, His Grace the Duke of, K.G., <i>17, St. James's-square, S.W.</i>
1853	Clirebugh, William Palin, F.I.A., <i>158, Leadenhall-street, E.C.</i>
1877	Cobb, B. Francis, <i>79, Cornhill, E.C.</i>
1873	Cockle, Captain George, F.R.G.S., <i>9, Bolton-gardens, South Kensington, S.W.</i>
1877	COHEN, LIONEL LOUIS, <i>9, Hyde Park-Terrace, W.</i>
1838	Colebrooke, Sir Thomas Edward, Bart., M.P., <i>14, South-street, W.</i>
1859	Coles, John, F.I.A., <i>39, Throgmorton-street, E.C.</i>
1879	Collings, Jesse, M.P., J.P., &c.. <i>The Woodlands, Wellington-road, Edgbaston, Birmingham.</i>
1874	Collins, Eugene, M.P., <i>38, Porchester-terrace, Hyde Park, W.</i>
1877	Collins, J. Wright, J.P. (Colonial Treasurer), <i>Stanley, Falkland Islands.</i>
1874	Collinson, John, F.R.G.S., <i>13, Palace-gate, W.</i>
1867	Colman, Jeremiah James, M.P., <i>Carrow House, Norwich.</i>
1878	Colomb, Captain J.C.R., R.M.A., J.P., <i>Dronmquinnae, Kenmare, Kerry.</i>
1879	Cooke, H. Ribton, <i>27, Fenchurch-street, E.C.</i>
1879	Cooke, Isaac B., <i>19, Brown's-buildings, Liverpool.</i>
1874	*Cookson, Faithful, F.R.G.S., <i>35, Grand Parade, Brighton.</i>
1879	Cooper, William John, <i>7, Westminster-chambers, Victoria-street, S.W.</i>
1843	*Copperthwaite, William Charles, <i>New Malton, Yorkshire.</i>
1874	Corbett, John, <i>6A, Waterloo-place, Pall Mall, S.W.</i>
1873	Cork, Nathaniel, F.R.G.S., <i>39, Lombard-street, E.C.</i>



Year of Election.	
1878	Cornish, William Robert, F.R.C.S. ( <i>Surgeon Major</i> ), <i>Sanitary Commissioner, Madras.</i>
1862	Courtney, Leonard Henry, M.A., M.P., <i>15, Queen Anne's Gate, Westminster, S.W.</i>
1873	Cowper, The Hon. Henry Frederick, M.P., <i>4, St. James's-square, S.W.</i>
1880	Cox, William John, <i>53, Arthur-road, Hornsey-road, N.</i>
1880	Craig, William Young, M.P., <i>Palace Chambers, St. Stephen's, Westminster, S.W.</i>
1874	CRAIGIE, MAJOR PATRICK GEORGE, (21, <i>Arundel-street, W.C.</i> ), <i>Hartley House, Lower Heath, Hampstead, N.W.</i>
1870	Craik, George Lillie, <i>29, Bedford-street, Strand, W.C.</i>
1872	Crellin, Philip, <i>33, Chancery-lane, W.C.</i>
1878	Crewdson, Ernest, <i>5, Norfolk-street, Manchester.</i>
1878	Crickmay, Herbert John, <i>Bank of England, E.C.</i>
1879	Crisford, George S., F.I.A., <i>West of England Insurance Company, Exeter.</i>
1880	*Crompton-Roberts, Charles H., <i>16, Belgrave-square, S.W.</i>
1876	Crosse, John Burton St. Croix, F.R.C.S., <i>Royal Military Asylum, Chelsea, S.W.</i>
1878	Crossman, James H., J.P., <i>Union Club, Trafalgar-square, S.W.</i>
1877	Crothers, Robert, M.D., M.R.C.P., <i>2, Warrior-square-terrace, St. Leonard's-on-Sea.</i>
1875	Crowe, William Russell, <i>Stanley House, Carshalton, Surrey.</i>
1879	Cunningham, Charles L., M.R.C.S., &c.
1875	Cunningham, David, C.E., <i>Works' Office, Harbour-chambers, Dundee.</i>
1879	Curtis, Robert Leabon, <i>15 and 16, Blomfield-street, E.C.</i>
1848	Cutcliffe, George, F.I.A., <i>13, St. James's-square, S.W.</i>
1873	Czarnikow, Cæsar, <i>Mitcham, Surrey.</i>
1869	Dalyell, The Hon. Robert Anstruther, C.S.I., <i>India Office, Westminster, S.W.</i>
1880	Danson, John Towne, <i>Woodland Crag, Grasmere.</i>
1880	Danvers, Frederick Charles, <i>India Office, Westminster, S.W.</i>

Year of Election.	
1873	DANVERS, JULAND, <i>India Office, Westminster, S.W.</i>
1869	Davies, James Mair, <i>65, West Regent-street, Glasgow.</i>
1874	Davies, William Henry, <i>51, Tregunter-road, S.W.</i>
1878	Davis, James, <i>32, Villiers-street, Charing-cross, S.W.</i>
1855	*Dawbarn, William, <i>Elmswood Hall, Aigburth, Liverpool.</i>
1873	Dawson, James Thomas, <i>79, Cornhill, E.C.</i>
1876	Day, William Ansell, <i>Lyndhurst House, Hendon, N.W.</i>
1880	Debenham, Frank, <i>26, Upper Hamilton-place, St. John's Wood, N.W.</i>
1879	*De Ferrieres, The Baron Du Bois, M.P., J.P. <i>Bay's-hill House, Cheltenham.</i>
1873	Delahunty, James, <i>2, Savile-row, W.</i>
1877	Deloitte, William Welch, <i>4, Lothbury, E.C.</i>
1873	Dent, Clinton Thomas, F.R.C.S. <i>29, Chesham-street, S.W.</i>
1873	Dent, Edward, <i>Fernacres, Fulmer, near Slough, Bucks.</i>
1855	*DERBY, THE RIGHT HONOURABLE THE EARL OF, P.C., F.R.S., ( <i>Honorary Vice-President</i> ), <i>23, St. James's-square; and Knowsley, Prescot, Lancashire.</i>
1877	Dever, Henry, <i>4, Lothbury, E.C.</i>
1877	De Worms, Baron Henry, M.P., F.R.A.S., <i>H 2, Albany, Piccadilly, W.</i>
1866	*Dilke, Sir Charles Wentworth, Bart., M.P., LL.M., <i>76, Sloane-street, S.W.</i>
1873	Dixon, George, <i>The Dales, Edgbaston, Birmingham.</i>
1876	Dowden, Major Thomas Freeman, R.E., <i>71, Old Broad Street, E.C.</i>
1877	Downs, Henry, <i>Manor House, Basingstoke.</i>
1875	Doxsey, Rev. Isaac, <i>The Grove, Camberwell, S.E.</i>
1878	Doyle, Patrick, C. E., <i>O'Brien Villa, 21, North-road, Entally, Calcutta.</i>
1875	Drimmie, David, <i>41, Lower Sackville-street, Dublin.</i>
1872	Droop, Henry Richmond, <i>1a, New-square, Lincoln's-inn, W.C.</i>

Year of Election.	
1878	Duignan, William Henry, <i>Walsall, Staffordshire.</i>
1875	Dun, John, <i>Parr's Banking Company, Limited, Warrington.</i>
1870	Duncan, James, <i>9, Mincing-lane, E.C.</i>
1878	*Dunraven, The Right Hon. Earl of, K.P., <i>Kenry House, Putney Vale, S.W.</i>
1875	Dyer, Sir Swinnerton Halliday, Bart., J.P., <i>Westcroft, Cholham, Woking Station, Surrey.</i>
1836	Edmonds, Thomas Rowe, B.A., <i>72, Portsdown-road, Maida-vale, W.</i>
1869	Edmonds, William, <i>Annesley House, Southsea.</i>
1875	Edwards, Samuel, <i>4, Eliot Park, Lewisham, S.E.</i>
1880	Egerton, Honourable Wilbraham, M.P., <i>23, Rutland Gate, S.W.</i>
1872	Elliot, Sir George, Bart., <i>Park-street, Park-lane, W.</i>
1874	Elliot, Robert, M.D., F.R.C.P., <i>35, Lowther-street, Carlisle.</i>
1842	Elliott, John Hawkins, <i>4, Martin's-lane, E.C.</i>
1877	Ellis, Arthur, <i>11, Park-villas, Crouch-end, N.</i>
1873	Elsey, John Green, J.P., <i>Morant House, Addison-road, Kensington, W.</i>
1873	Emanuel, Lewis, <i>36, Finsbury-circus, E.C.</i>
1877	Emmott, W. T., <i>Newfield House, near Lymm, Cheshire.</i>
1879	Evans, Henry Jones, J.P., <i>Brecon Old Bank, Cardiff.</i>
1880	Evans, Henry Russell, (Mayor of Newport), <i>Newport, Monmouth.</i>
1862	Evens, John Henry, <i>Ericht Lodge, Dulwich, S.E.</i>
1875	Everett, The Hon. H. Sidney, M.A., <i>United States Legation, 4, Alsenstrasse, Berlin.</i>
1834	Eversley, The Right Honourable Viscount, D.C.L., LL.D., <i>114, Eaton-square, S.W.; and Winchfield, Hants.</i>

Year of  
Election.

- 1875 Faraday, Frederick J.,  
17, *Brazenose-street, Manchester.*
- 1874 Farmer, James,  
6, *Porchester-gate, Hyde Park, W.*
- 1839 FARR, WILLIAM, M.D., C.B., D.C.L., F.R.S.,  
(*Honorary Vice-President*),  
78, *Portsdown-road, Maida Vale, W.*
- 1868 Farrell, John Douglas,  
*Bank of England, West Branch, Burlington-gardens, W.*
- 1878 Farren, George, M.I.C.E.,  
*Carnarvon.*
- 1878 Farrer, Thomas Henry,  
*Board of Trade, Whitehall, S.W.*
- 1876 Fearnside, Henry, M.B., F.R.C.P.,  
49, *Leinster-gardens, Bayswater, W.*
- 1864 Fellows, Frank P.,  
8, *The Green, Hampstead, N.W.*
- 1874 Ferguson, A.M.,  
“*Ceylon Observer*” Office, *Colombo, Ceylon.*
- 1877 Ferrier, John,  
*Rosslyn House, New Barnet, Herts.*
- 1880 Finch, George Henry, M.P.,  
*Burley-on-the-hill, Oakham.*
- 1834 Finch, John,  
*Heathside, Tunbridge Wells.*
- 1880 Finlaison, Alexander John, F.I.A.,  
19, *Old Jewry, E.C.*
- 1880 Finlay, George,  
*London and N. Western Railway, Euston Station, N.W.*
- 1873 Fisher, Henry,  
66, *New Broad-street, E.C.*
- 1875 FitzGeorge, Owen,  
36, *Cornhill, E.C.*
- 1879 Fitzwilliams, Edward Crompton Lloyd,  
*Adpar Hill, Newcastle Emlyn, Carmarthen, S. Wales.*
- 1878 Follett, Charles John, M.A., B.C.L.,  
*H.M. Custom House, E.C.*
- 1875 Fordham, Edward King, J.P.,  
*The Bury, Ashwell, Baldock, Herts.*
- 1841 Fortescue, The Right Honourable Earl,  
*Castle Hill, South Molton, Devon.*
- 1871 Forwood, William Bower,  
*Ramlet, Blundellsands, Liverpool.*
- 1880 Fowell-Watts, Philip Henry, M.A., LL.D.,  
73, *Colvestone-crescent, West Hackney, E.*
- 1877 \*Fowler, Alderman Robert Nicholas, M.P.,  
50, *Cornhill, E.C.; and Elm Grove, Corsham, Wilts.*



Year of Election.	
1868	Fowler, William, M.P., 33, <i>Cornhill, E.C.</i>
1878	Foxwell, Herbert S., M.A., <i>St. John's College, Cambridge.</i>
1879	Francis, George Edward, <i>Staunton Coleford, Gloucestershire.</i>
1878	Frankland, Frederick William, <i>Registrar-General's Office, Wellington, New Zealand.</i>
1844	*Freeland, Humphrey William, J.P., <i>Athenæum Club, S.W.; and Chichester.</i>
1876	Freeman, Joseph, <i>Burwood Lodge, West Brixton, S.W.</i>
1876	Freeman, T. Kyffin, <i>Hampton-on-Sea, Herne Bay.</i>
1878	Fuller, W. Palmer, 50, <i>Gresham-street, E.C.</i>
1879	Gairdner, Charles, <i>Broom, Newton Mearns, Renfrewshire.</i>
1852	Galsworthy, Edwin Henry, J.P., F.I.A., 18, <i>Upper Wimpole-street, W.</i>
1873	*Galton, Capt. Douglas, R.E., C.B., F.R.S., 12, <i>Chester-street, Grosvenor-place, S.W.</i>
1860	Galton, Francis, F.R.S., F.R.G.S., 42, <i>Rutland-gate, S.W.</i>
1878	Gardiner, Clement, 11, <i>Small-street, Bristol.</i>
1878	Gardiner, Henry J., <i>Hurstmead, Eltham, Kent.</i>
1879	*Gassiot, John Peter, J.P., <i>The Culvers, Carshalton, Surrey,</i>
1872	Gastrell, Major-General J. E., 7, <i>Lansdowne-road, Wimbledon, S.W.</i>
1880	*Gates, John B., jun., A.C.A., 99, <i>Gresham-street, E.C.</i>
1874	Gatliff, Charles, 8, <i>Finsbury-circus, E.C.</i>
1877	Gawith, Richard Jackson, M.R.C.S., 23, <i>Westbourne-park-terrace, Paddington, W.</i>
1872	Gibb, Thomas Eccleston, 16, <i>Lady Margaret-road, N.W.</i>
1874	Gibbs, Alban George Henry, 82, <i>Portland-place, W.</i>
1871	Gibbs, George Sleight, <i>Darlington.</i>
1867	*GIFFEN, ROBERT, ( <i>Secretary and Editor of the Journal</i> ), 44, <i>Pembroke-road, Kensington, W.</i>

Year of  
Election.

- 1877 Gilbert, William H. Sainsbury,  
9, *Old Jewry, E.C.*
- 1878 \*Glanville, S. Goring,  
238, *Lewisham High-road, S.E.*
- 1860 Glover, John,  
22, *Great St. Helen's, Bishopsgate-street, E.C.*
- 1877 Goddard, Frederick Robertson,  
19, *Victoria-square, Newcastle-on-Tyne.*
- 1877 Good, Alfred, (7, *Poultry, E.C.*),  
91, *Highbury Hill, N.*
- 1880 Goodhart, Charles E.,  
*Langley-park, Beckenham, Kent.*
- 1868 Göschen, The Right Hon. George Joachim, M.P.,  
69, *Portland-place, W.*
- 1855 \*Gosset, John Jackson,  
*Thames Ditton, Surrey.*
- 1873 Gouly, Edward James,  
*Bullion Office, Bank of England, E.C.*
- 1853 Gover, William Sutton, F.I.A.,  
4, *Queen-street-place, Southwark Bridge, E.C.*
- 1876 Grahame, James, C A.,  
12, *St. Vincent-place Glasgow.*
- 1879 Grant, Daniel, M.P.,  
12, *Cleveland-gardens, Bayswater, W.*
- 1875 Granville, Joseph Mortimer, M.D., F.G.S., &c.,  
18, *Welbeck-street, Cavendish-square, W.*
- 1847 Gray, Thomas,  
34, *Fenchurch-street, E.C.*
- 1878 Green, Thomas Bowden, M.A., F.R.S.L., F.R.H.S., &c.,  
7, *New-road, Oxford.*
- 1877 Greene, William Thomas, M.A.. M.D..  
*Moir House, Peckham Rye, S.E.*
- 1868 Griffith, Edward Clifton,  
31, *St. James's-square, S.W.*
- 1875 Gunn, Arthur,  
*Metropolitan Board of Works, Spring-gardens, S.W.*
- 1860 Gurney, Daniel,  
*North Runciton, near King's Lynn, Norfolk.*
- 1878 Guthrie, Charles,  
*London Chartered Bank of Australia, Melbourne, Victoria.*
- 1877 Gutteridge, Richard Sandon, M.D.,  
58, *Brook-street, Grosvenor-square, W.*
- 1839 GUY, WILLIAM AUGUSTUS, M.B., F.R.C.P., F.R.S.,  
(*Honorary Vice-President*),  
12, *Gordon-street, Gordon-square, W.C.*
- 1880 \*Gwynne, J. Eglinton A., J.P., F.S.A.,  
97, *Harley-st., W. ; Folkington Manor, Polegate, Sussex.*

Year of Election.	
1873	*Haggard, Frederick T., <i>Eltham Court-road, Eltham, Kent.</i>
1876	Hall, Edward Algernon, <i>131, Piccadilly, W.</i>
1876	Hall, Edward Hepple, <i>73, Elm-park, Brixton-hill, S.W.</i>
1869	Hall, James Macalester, <i>Killean House, Tayinloan, Argyleshire.</i>
1878	Hallett, T.G.P., M.A., <i>Claverton Lodge, Bath.</i>
1873	Hamilton, Lord George Francis, M.P., <i>17, Montagu-street, Portman-square, W.</i>
1879	Hamilton, Rowland, <i>Oriental Club, Hanover-square, W.</i>
1873	Hanbury, Robert William, <i>Ilam Hall, Ashbourne, Derbyshire.</i>
1869	Hancock, William, <i>33, Cornhill, E.C.</i>
1879	Hancock, William Neilson, LL.D., M.R.I.A., <i>64, Upper Gardiner-street, Dublin.</i>
1875	Hankey, Ernest Alers, <i>Elmhurst, Bickley-park, Kent.</i>
1837	*Hankey, John Alexander, J.P., <i>Balcombe-place, Cuckfield, Sussex.</i>
1879	Hankey, Thomson, <i>59, Portland-place, W.</i>
1861	Hannington, Major-General John Caulfield, F.I.A., <i>India Office, Westminster, S.W.</i>
1876	Hansard, Luke, <i>68, Lombard-street, E.C.</i>
1871	Harcourt, Right Hon. Sir William Vernon, Q.C., M.P., <i>7, Grafton-street, Bond-street, W.</i>
1877	Harding, Charles, M.R.S.L., F.R.G.S., <i>7, Bank Buildings, E.C.</i>
1877	Harold, Frederick Richard, <i>12, Landseer-road, Upper Holloway, N.</i>
1878	Harper, W. P.,
1868	Harris, David, <i>Caroline Park, Granton, Edinburgh.</i>
1879	Harris, Frederick, <i>62, Gracechurch-street, E.C.</i>
1834	HARROWBY, THE RIGHT HON. THE EARL OF, K.G., D.C.L., <i>(Honorary Vice-President),</i> <i>39, Grosvenor-square, W.</i>
1870	Hartley, Fountain John, <i>Gloucester House, 97, Gazonove-road, Upper Clapton, N</i>
1880	Hastings, George Woodyatt, M.P., <i>Barnard's-green House, Great Malvern.</i>

Year of Election.	
1876	Hawkins, Alfred Templeton, F.R.G.S., 35, <i>Spring-gardens, Charing-cross, S.W.</i>
1879	Hawksley, Thomas, C.E., F.R.S., &c., 30, <i>Great George-street, Westminster, S.W.</i>
1873	Hay, James Lamb Napier,
1880	Hazell, Walter, <i>Fairham House, Hornsey-lane, N.</i>
1877	Hedley, Thomas Fenwick, 12, <i>Park-place, West, Sunderland.</i>
1870	Hefford, George V., <i>Rugby.</i>
1860	Helder, Stewart, F.I.A., 2, <i>Broad Sanctuary, S.W.</i>
1865	Hendriks, Augustus, F.I.A., 7, <i>Cornhill, E.C.</i>
1855	*HENDRIKS, FREDERICK, ( <i>Vice-President</i> ), 1, <i>King William-street, E.C.</i>
1858	Heraopath, Spencer, F.G.S., 18, <i>Upper Phillimore-gardens, W.</i>
1877	*Herbage, William, <i>London &amp; South Western Bank, 7, Fenchurch-street, E.C.</i>
1834	*HEYWOOD, JAMES, M.A., F.R.S., F.G.S., ( <i>Honorary Vice-President and Trustee</i> ), 26, <i>Palace-gardens, Kensington, W.; Athenæum Club, S.W.</i>
1869	Hickson, Joseph, J.P., <i>Montreal, Canada.</i>
1875	Higham, Charles Daniel, F.I.A., 3, <i>Princes-street, Bank, E.C.</i>
1878	Hill, Frederick Morley, 22, <i>Richmond-road, Barnsbury, N.</i>
1873	Hime, Capt. H. W. L., R.A., <i>Sheffield.</i>
1859	Hincks, His Excellency, Sir Francis, <i>Montreal, Canada.</i>
1879	Hoare, Hamilton Noel, 37, <i>Fleet-street, E.C.</i>
1870	*Hoare, Henry, <i>Staplehurst, Kent.</i>
1834	*Hodge, William Barwick, F.I.A., 5, <i>Whitehall, S.W.</i>
1877	Holden, Isaac, 64, <i>Cross-street, Manchester.</i>
1877	Holmes, Richard Henry, <i>Elswick-villa, Rye Hill, Newcastle-on-Tyne.</i>
1880	Holms, John, M.P., 16, <i>Cornwall-gardens, Queen Gate, S.W.</i>
1874	Hood, Charles, F.R.S., F.R.A.S., 10, <i>Leinster-gardens, Hyde-park, W.</i>



Year of Election.	
1871	Hooper, Augus Cameron, <i>Montreal, Canada.</i>
1874	Hooper, George D., <i>Belmont Lodge, Oxford-road, Chiswick, W.</i>
1879	Hooper, George Norgate, <i>Elmleigh, Hayne-road, Beckenham, Kent.</i>
1878	Hooper, Wynnard, <i>2, Pembroke-gardens, Kensington, W.</i>
1855	HOUGHTON, THE RIGHT HON. LORD, D.C.L. F.R.S., ( <i>Honorary Vice-President</i> ), <i>Fryston Hall, Ferrybridge, Yorkshire.</i>
1876	Hoyle, William, <i>Claremont, Tottington, near Bury, Lancaster.</i>
1872	Hubbard, Egerton J., <i>4, St. Helen's-place, Bishopsgate-street, E.C.</i>
1853	*Hubbard, The Right Hon. John Gellibrand, M.P., <i>Bank of England, E.C.</i>
1864	Hudson, Thomas, <i>Argos Villa, St. Andrew's Park, Bristol.</i>
1880	Huggard, Wm. R., M.A., M.D., M.R.C.P. Lond., <i>Sussex House, Hammersmith, W.</i>
1871	Hughes, Albert William, F.R.G.S., <i>Dharvar, So. Mahratta Country, Bombay Presidency.</i>
1878	Hughes, John, <i>3, West-street, Finsbury-circus, E.C.</i>
1872	Humphreys, George, M.A., F.I.A., <i>79, Pall Mall, S.W.</i>
1874	HUMPHREYS, NOEL ALGERNON, <i>General Register Office, Somerset House, W.C.</i>
1873	Hunt, Sir Henry Arthur, C.B., <i>54, Eccleston-square, S.W.</i>
1857	Hurst, George, <i>King's Brook House, St. Mary's, Bedford.</i>
1877	Huskinson, Thomas, <i>Epperstone Manor, Nottingham.</i>
1879	Hyde, Major-General Henry, R.E., <i>India Office, Westminster, S.W.</i>
1866	Ince, Henry Bret, Q.C., <i>18, Old-square, Lincoln's-inn, W.C.</i>
1869	Ingall, Samuel, F.R.G.S., <i>Kent-end, Forest-hill, Kent, S.E.</i>
1874	*Ingall, William Thomas Fitzherbert Mackenzie, <i>50, Threadneedle-street, E.C.</i>

Year of Election.	
1869	*Inglis, Cornelius, M.D., <i>Athenæum Club, S.W.</i>
1839	Irving, John, <i>94, Eaton-place, S.W.</i>
1878	Isaacs, Michal Babel, <i>35, Leinster-square, Bayswater, W.</i>
1864	*Ivey, George Pearse, <i>Tyle Morris, Briton Ferry.</i>
1880	*Jackson, William Lavies, M.P., <i>Chapelallerton, Leeds.</i>
1879	Jamieson, George Auldjo, <i>58, Melville-street, Edinburgh.</i>
1872	Janson, Frederick Halsey, F.L.S., <i>41, Finsbury-circus, E.C., and Oak Bank, Chislehurst.</i>
1878	Jeans, James Stephen, <i>7, Westminster-chambers, Victoria-street, S.W.</i>
1851	*Jellicoe, Charles, F.I.A., <i>12, Cavendish-place, W.</i>
1879	Jephson, Henry L. ( <i>Chief Secretary's Office</i> ), <i>Dublin Castle, Ireland.</i>
1864	*JEVONS, PROFESSOR W. STANLEY, M.A., LL.D., F.R.S., ( <i>Vice-President</i> ), <i>The Chesnuts, Branch-hill, Hampstead Heath, N.W.</i>
1871	Johnson, Edmund, <i>1, Castle-street, Holborn, E.C.</i>
1880	Johnson, Walter, <i>Rounton Grange, Northallerton.</i>
1872	Johnston, Francis J., <i>Lamas, Chislehurst.</i>
1878	Johnstone, E., <i>45, Fleet-street, E.C.</i>
1878	Jones, Henry R. Bence, <i>1, Whitehall, S.W.</i>
1874	Jones, Herbert, <i>15, Montpelier-row, Blackheath, S.E.</i>
1880	Jones, Robert H., <i>The Briars, Crystal Palace Park, Sydenham.</i>
1877	Jones, Theodore Brooke, <i>1, Finsbury-circus, E.C.; Georgeville, Harrogate, Yorks.</i>
1873	Jones, Sir Willoughby, Bart., M.A., <i>Cranmer Hall, Fakenham, Norfolk.</i>
1858	Jourdan, Francis, <i>Avenue House, Hampstead, N.W.</i>
1877	Karuth, Frank O., <i>Oakhurst, Beckenham, Kent.</i>

Year of Election.	
1873	Kay, Duncan James, 60, <i>Queen's-gate, S.W.</i>
1877	Kealy, James William, 26, <i>Moorgate-street, E.C.</i>
1874	Kelly, Charles, M.D., <i>Worthing, Sussex.</i>
1867	Kelly, Edward Robert, A.M., 51, <i>Great Queen-street, Lincoln's-inn-fields, W.C.</i>
1878	Kelsey, Joseph Francis, <i>Government Statistician, Mauritius.</i>
1873	Kemp, Samuel, <i>Oriel House, Bath.</i>
1878	Kennedy, J. Murray, <i>New University Club, St. James's-street, S.W.</i>
1868	Kennedy, Peter, 13, <i>Cornwall-terrace, Regent's-park, N.W.</i>
1878	Kennedy, Thomas, 11, <i>Old Jewry-chambers, E.C.</i>
1874	Kennelly, David Joseph, F.R.G.S., F.R.A.S., <i>Devonshire Club, St. James's, S.W.</i>
1852	Kimberley, The Right Honourable the Earl of, M.A., P.C., 35, <i>Lowndes-square, S.W.</i>
1878	King-Harman, Edward Robert, <i>Rockingham, Boyle, Ireland.</i>
1879	Kirkwood, Anderson, LL.D., <i>Melville-terrace, Stirling, N.B.</i>
1872	Knight, John Peake, <i>London, Brighton, &amp; S. Coast Rail., London Bridge, E.C.</i>
1865	Kühner, Henry, (c/o Messrs. Kühner, Hendschel & Co.), 145, <i>Cannon-street, E.C.</i>
1878	*Kusaka, Yoshio, 62, <i>Hogarth-road, Kensington, S.W.</i>
1869	Kyshe, John Benjamin, <i>Registrar General, Mauritius.</i>
1880	Lamprey, Joshua Henry, 17, <i>St. Anne's-park, Wandsworth, S.W.</i>
1877	Lane, Cecil N., <i>King's Bromley Manor, Lichfield.</i>
1875	Lane, Thomas, <i>Percy Cottage, Eastbourne.</i>
1874	Lang, George Murray, R.N., 18, <i>Cheyne-walk, Chelsea, S.W.</i>
1878	Law, The Right Hon. Hugh, M.P., 9, <i>Fitzwilliam-square, Dublin.</i>
1874	Lawes, John Bennett, LL.D., F.R.S., F.C.S., <i>Rothamsted-park, St. Albans.</i>

Year of Election	
1877	Lawrance, Henry, 58, <i>Euston-square, N.W.</i>
1878	Lawrence, Alexander M., 17, <i>Thurlow-road, Hampstead, N.W.</i>
1873	Lawrie, James, F.R.G.S., <i>Kelvin House, Quadrant-road, Highbury, N.</i>
1873	LAWSON, ROBERT, ( <i>Inspector-General of Army Hospitals</i> ), 20, <i>Lansdowne-road, Notting-hill, W.</i>
1873	Lea, Thomas, M.P., 14, <i>Elvaston-place, Queen's-gate, S.W.</i>
1880	Lee, Lionel Frederic, ( <i>Ceylon Civil Service</i> ), <i>c/o H. Austin Lee, Foreign Office, Downing-street, S.W.</i>
1879	*Leete, Joseph, 36, <i>St. Mary-at-hill, E.C. (Eversden, S. Norwood Park.)</i>
1877	LEFEVRE, THE RIGHT HONOURABLE GEORGE SHAW, M.P., ( <i>Honorary Vice-President</i> ), 18, <i>Bryanston-square, W.</i>
1877	*Leggatt, Daniel, LL.D., 5, <i>Raymond-buildings, Gray's-inn, W.C.</i>
1880	Leighton, Stanley, M.P., <i>Sweeney Hall, Oswestry, Salop.</i>
1873	Leslie, Francis Seymour,
1851	LEVI, PROFESSOR LEONE, LL.D., F.S.A., 5, <i>Crown Office-row, Temple, E.C.</i>
1879	Levison, David, 2, <i>Royal Exchange-buildings, E.C.</i>
1867	Lewis, Charles Edward, M.P., 8, <i>Old Jewry, E.C.</i>
1877	Lewis, John, 1, <i>Temple-row West, Birmingham.</i>
1862	Lewis, Robert, 1, <i>Bartholomew-lane, E.C.</i>
1877	Ligertwood, Thomas, M.D., F.R.C.S., <i>Royal Hospital, Chelsea, S.W.</i>
1845	*Lister, William,
1834	Lloyd, John Horatio, 100, <i>Lancaster-gate, Hyde-park, W.</i>
1878	Lloyd, Thomas, 4, <i>Huddlestons-road, Tufnell-park, N.</i>
1879	Lloyd, Wilson, F.R.G.S., <i>Myvold House, Wood-green, Wednesbury.</i>
1876	Lord, James, F.S.A., 1, <i>Whitehall-gardens, S.W.</i>
1876	*Lornie, John Guthrie, <i>Rosemount, Kirkcaldy; Birnam House, Perthshire.</i>
1879	Lovegrove, Mrs., 28, <i>Park-street, Grosvenor-square, W.</i>
1880	Lovegrove, Joseph, 28, <i>Park-street, Grosvenor-square, W.</i>



Year of Election.	
1834	Lovelace, The Right Honourable the Earl of, F.R.S., <i>East Horsley Park, Ripley, Surrey.</i>
1880	Lovely, William, R.N., <i>Avenue House, Hammersmith, S.W.</i>
1879	Lowndes, William Layton, J.P., D.L., <i>Linley Hall, Broseley, Shropshire.</i>
1875	Loyd, William Jones, J.P., 16, <i>Grosvenor-place, S.W., and Langleybury, Watford.</i>
1865	LUBBOCK, SIR JOHN, BART., M.P., F.R.S., (Trustee), <i>High Elms, Farnborough, Kent.</i>
1878	Lucas, Thomas, J.P., 5, <i>Great George-street, Westminster, S.W.</i>
1878	Lusk, Sir Andrew, Bart., M.P. J.P., 16, <i>Hyde-park-street, W.</i>
1879	Lyall, J. Watson,
1875	Mabson, Richard Rous, <i>Iford, Essex.</i>
1873	*Macandrew, William, J.P., <i>Westwood, near Colchester.</i>
1873	McArthur, Alexander, M.P., <i>Raleigh Hall, Brixton, S.W.</i>
1873	McArthur, The Right Honourable William, M.P., Lord Mayor of London, 1, <i>Gwydyr Houses, Brixton Rise, S.W.</i>
1879	MacCarthy, Rev. E. F. M., M.A., 47, <i>Hagley-road, Edgbaston, Birmingham.</i>
1878	McCheane, Robert, 90, <i>Palace-gardens-terrace, W.</i>
1879	McCheane, Robert, junr., 90, <i>Palace-gardens-terrace, W.</i>
1867	M'CLean, Frank, 23, <i>Great George-street, Westminster, S.W.</i>
1873	McDermott, Edward, <i>Hill Side, Grove-park, Camberwell, S.E.</i>
1868	*Macdonald, James, 17, <i>Russell-square, W.C.</i>
1872	Macdonell, John, (3, <i>Elm-court, Temple, E.C.</i> ), <i>The Myrtles, Beckenham, Kent.</i>
1873	*McEwen, Laurence T. (c/o R. A. McLean), 8, <i>Old Jewry, E.C.</i>
1873	McGarel-Hogg, Colonel Sir James, Bart., M.P., 17, <i>Grosvenor-gardens, S.W.</i>
1856	MacGillivray, Donald, F.I.A., 54, <i>Moorgate-street, E.C.</i>
1879	MacIver, David, M.P., 34, <i>Lancaster-gate, W.</i>

Year of Election.	
1876	McKenna, Sir Joseph N., M.P., 1, <i>Pen-y-Wern-road, S.W.</i>
1878	McKewan, William, 21, <i>Lombard-street, E.C.</i>
1870	MacLagan, David, 22, <i>George-street, Edinburgh.</i>
1876	*McLean, Robert Allan, F.R.G.S., 8, <i>Old Jewry, E.C.</i>
1874	Macleod, The Right Hon. Sir John Macpherson, K.C.S.I., 1, <i>Stanhope-street, Hyde Park, W.</i>
1863	*Maclure, J. W., J.P., &c., <i>Carlton Club; The Home, Whalley Range, Manchester.</i>
1875	Macpherson, Hugh Martin, F.R.C.S., ( <i>Inspector-General</i> ), 14, <i>St. James's-square, S.W.</i>
1880	Maddison, Edward C., 31, <i>Lombard-street, E.C.</i>
1871	Malgarini, Frederick Lewis, F.R.S.E.,
1879	Man, Edward Garnet ( <i>Barrister-at-Law</i> ), 4, <i>Lamb-buildings, Temple, E.C., and Rangoon.</i>
1878	Manuel, R. A., ( <i>Rangoon</i> ), <i>c/o Messrs. Trübner and Co., Ludgate-hill, E.C.</i>
1877	*Maple, John Blundell, 8, <i>Clarence-terrace, Regent's-park, N.W.</i>
1875	Marsh, Alfred, 85, <i>Gracechurch-street, E.C.</i>
1860	Marsh, Matthew Henry, <i>Bamridge, near Andover, Hants.</i>
1880	*Marshall, A., 31, <i>Apsley-road, Clifton, Bristol.</i>
1865	Martin, Frederick, 22, <i>Lady Margaret-road, N.W.</i>
1873	Martin, Henry, <i>National Bank of India, 39a, Threadneedle-street, E.C.</i>
1874	*MARTIN, JOHN BIDDULPH, M.A., F.Z.S., ( <i>Secretary</i> ), 6B, <i>The Albany, Piccadilly, W.</i>
1877	Martin, Josiah, F.I.A., 32, <i>New Bridge-street, E.C.</i>
1872	*MARTIN, RICHARD BIDDULPH, M.P., ( <i>Treasurer</i> ), <i>Chislehurst.</i>
1876	Martin, Thomas Jaques, <i>Colonial Life Assurance Company, Melbourne, Victoria.</i>
1879	Martin, Waldyve A. Hamilton, 14, <i>Manson-place, Queen's-gate, S.W.</i>
1875	*Mathers, John Shackleton, <i>Hanover House, Leeds, Yorkshire.</i>
1878	Maughan, Joseph Henry, A.I.S., 9, <i>New-street, Great Grimsby.</i>
1870	Maxse, Rear-Admiral Frederick A., <i>Herm House, Upperton-road, Eastbourne.</i>

Year of Election.	
1874	May, Frank, <i>Bank of England, Threadneedle-street, E.C.</i>
1853	*Meikle, James, F.I.A., <i>6, St. Andrew's-square, Edinburgh.</i>
1878	Meldon, Charles Henry, M.P., Q.C., LL.D., <i>107, Jermyn-street, S.W.</i>
1880	Menzies, R. Stewart, <i>Hallyburton, Coupar-Angus, N.B.</i>
1878	Merrick, Alfred Benjamin, <i>6, Cotham-parade, Bristol.</i>
1861	Messent, John, F.I.A., <i>429, West Strand, W.C.</i>
1877	Metcalfe, Richard, <i>Gräefenberg House, New Barnet, Herts.</i>
1877	Michael, William H., <i>38, Parliament-street, S.W.</i>
1875	Mildmay, Henry Bingham, J.P., <i>8, Bishopsgate-street Within, E.C.</i>
1873	Millar, William Henry, <i>Cleveland Lodge, New Park-road, Brixton-hill, S.W.</i>
1877	Miller, Robert Ferguson, <i>Ramsden-square, Barrow-in-Furness.</i>
1879	Miller, William, <i>55, Lancaster-gate, W. (67, Queen Victoria-street, E.C.)</i>
1878	Mills, Sir Charles Henry, Bart., M.P., <i>Camelford House, Park-lane, W.</i>
1878	Mitchell, James, J.P., <i>33, Ennismore-gardens, S.W.</i>
1874	*Mocatta, Frederick D., F.R.G.S., <i>9, Connaught-place, W.</i>
1878	Moffat, Robert J., <i>The Chesnuts, Great Shelford, Cambridgeshire.</i>
1879	Moore, Alfred, C.E., <i>5, Clarence-street, Manchester.</i>
1874	Moore, Charles Rendall, <i>67, Montpelier-road, Peckham, S.E.</i>
1877	Moore, Edward, <i>3, Crosby-square, E.C.</i>
1878	*Moore, John Byers Gunning, <i>Loymount, Cookstown, Ireland.</i>
1874	Moore, Sandford, M.B., <i>South Camp, Aldershot.</i>
1830	More, Robert Jasper, <i>Linley Hall, Bishopscastle, Salop.</i>
1872	Morgan, Octavius Vaughan, J.P., <i>13, Boltons, South Kensington, S.W.</i>
1873	*Morley, Samuel, M.P., <i>18, Wood-street, E.C.; 34, Grosvenor-street, W.</i>
1874	*Morris, James, M.D., F.R.C.S., <i>13, Somers-place, Hyde-park-square, W.</i>

Year of Election.	
1877	Mort, William, 1, <i>Stanley-crescent, Notting-hill, W.</i>
1873	Morton, James, <i>Balclutha, Greenock, N.B.</i>
1847	*MOUAT, FREDERIC J., M.D., F.R.C.S., ( <i>Vice-President and Foreign Secretary</i> ), 12, <i>Durham-villas, Kensington, W.</i>
1857	Mount-Temple, The Right Hon. Baron, 15, <i>Great Stanhope-street, W.</i>
1878	Muir, Hugh Brown, 26, <i>Old Broad-street, E.C.</i>
1880	Mulhall, Michael G., <i>Grasslands, Balcombe, near Hayward's Heath, Sussex.</i>
1877	Mullen, Robert Gordon, <i>Fairview, Widmore-road, Bromley, Kent.</i>
1878	*Mundella, The Right Hon. Anthony John, M.P., 16, <i>Elvaston-place, Queens-gate, S.W.</i>
1878	Murray, Adam, 104, <i>King-street, Manchester.</i>
1879	Murray, James Charles, <i>Calcutta.</i>
1879	Nalder, Francis Henry, <i>Findern Lodge, Spring-grove, Isleworth.</i>
1865	Nasmith, David, 4, <i>Garden-court, Temple, E.C.</i>
1878	Nathan, Henry, 110, <i>Portsmouth-road, Maida-vale, N.</i>
1879	Neil, William M., 64, <i>Seymour-street, Portman-square, W.</i>
1854	Neild, Alfred, <i>Mayfield, Manchester.</i>
1869	NEISON, FRANCIS G. P., 93, <i>Adelaide-road, South Hampstead, N.W.</i>
1879	Nepean, Evan Colville, <i>War Office, Pall Mall, S.W.</i>
1877	Nevill, Charles Henry, 11, <i>Queen Victoria-street, E.C.</i>
1862	Newbatt, Benjamin, F.I.A., F.R.G.S., 13, <i>St. James's-square, S.W.</i>
1879	Newdegate, Charles Newdigate, M.P., D.C.L., 27, <i>Lowndes-street, Belgrave-square, S.W.</i>
1877	Newington, Samuel, M.A., <i>Ticehurst, Sussex.</i>
1847	*NEWMARCH, WILLIAM, F.R.S., F.I.A., ( <i>Trustee and Honorary Vice-President</i> ), <i>Beech Holme, Nightingale-lane, Clapham-common, S.W.</i>



Year of Election.	
1869	Newmarch, William T., A.A., Oxon, 67, <i>Lombard-street, E.C.</i>
1878	Newport, Henry R., 1, <i>Whitehall, S.W.</i>
1878	Newton, John, <i>Ash Lea, Croydon-road, Penge, S.E.</i>
1878	Nicholson, J. S., <i>Trinity College, Cambridge.</i>
1858	Nightingale, Miss Florence, 10, <i>South-street, Park-lane, W.</i>
1877	Nix, Samuel Dyer, 3, <i>King-street, Cheapside, E.C.</i>
1871	*Noble, Benjamin, <i>North-Eastern Bank, Newcastle-on-Tyne.</i>
1870	Noble, John, 45, <i>Mornington-road, Regent's-park, N.W.</i>
1834	Norman, George Warde, J.P., <i>Bromley, Kent.</i>
1877	Norman, General, Sir Henry Wylie, K.C.B., 27, <i>Lexham-gardens, Cromwell-road, W.</i>
1878	Northbrook, The Right Hon. the Earl of, G.C.S.I., D.C.I., 4, <i>Hamilton-place, Piccadilly, W.</i>
1878	Notthafft, Theodor, <i>c/o Discount Bank, St. Petersburg.</i>
1880	Oakeshott, George Alfred, <i>Secretary's Office, General Post Office, E.C.</i>
1880	*Oelsner, Isidor, <i>Highfield, Westwood-park, Forest-hill, S.E.</i>
1862	Ogbourne, Charles Henry, 29, <i>Dalhousie-square, Calcutta.</i>
1878	O'Hagan, The Right Hon. Lord, 19, <i>Chesham-place, S.W.</i>
1878	Oppenheim, Henry, 17, <i>Park-lane, Piccadilly, W.</i>
1876	Orange, William, M.D., <i>Broadmoor, Wokingham, Berks.</i>
1877	Ormond, Richard, <i>Belgrave-terrace, Newcastle-on-Tyne.</i>
1874	Overall, William Henry, F.S.A., <i>Librarian, Guildhall, E.C. (Representing the Library Committee of the Corporation of the City of London.)</i>
1834	*OVERSTONE, THE RIGHT HONOURABLE LORD, F.R.G.S., (Honorary Vice-President), 2, <i>Carlton-gardens, S.W.</i>

Year of Election.	
1866	*Palgrave, Robert Harry Inglis, J.P., 11, <i>Britannia-terrace, Great Yarmouth, Norfolk.</i>
1879	Palmer, George, M.P., ( <i>The Acacias, Reading</i> ), 68, <i>Grosvenor-street, W.</i>
1878	Park, David Francis, C.A., F.F.A., A.I.A., 17, <i>Change-alley, Cornhill, E.C.</i>
1880	Parkin, William ( <i>Temple Club, London</i> ), <i>Westbourne-road, Sheffield.</i>
1878	Parry, Thomas, <i>Grafton-place, Ashton-under-Lyne.</i>
1879	Partridge, Henry Francis, L.D.S., &c., <i>Sussex House, Sussex-place, South Kensington, S.W.</i>
1869	PATTERSON, ROBERT HOGARTH, 22, <i>Wingate-road, Hammersmith, W.</i>
1877	Paul, Henry Moncreiff, 12, <i>Lansdowne-crescent, Notting Hill, W.</i>
1878	Paulin, David, 31, <i>Stafford-street, Edinburgh.</i>
1879	Payn, Howard, 21, <i>Gilbert-street, Grosvenor-square, W.</i>
1877	Payne, William Percy, 136, <i>Mansfield-road, Nottingham.</i>
1873	Pearce, Charles William, <i>Devon House, Acre-lane, S.W.</i>
1876	Pearson, Edwin James, <i>Board of Trade, Whitehall, S.W.</i>
1857	*Pearson, Professor C. H. ( <i>c/o John Pearson, Q.C.</i> ), 75, <i>Onslow-square, S.W.</i>
1880	*Pease, Joseph Whitwell, M.P., 24, <i>Kensington-palace-gardens, W.</i>
1876	*Peek, Sir Henry William, Bart., M.P., <i>Wimbledon House, S.W.</i>
1878	Pellereau, His Honour, Etienne, <i>Puisne Judge of H.M. Supreme Court, Mauritius.</i>
1880	Pender, John, M.P., 18, <i>Arlington-street, S.W.</i>
1871	Pennington, Frederick, M.P., 17, <i>Hyde Park-terrace, W.</i>
1874	Pepys, The Hon. George,
1874	Phené, John Samuel, F.R.G.S., F.S.A., &c., 5, <i>Carlton-terrace, Oakley-street, S.W.</i>
1879	Philips, Herbert, 35, <i>Church-street, Manchester.</i>
1877	Phillipps, Henry Matthews, 41, <i>Seething-lane, E.C.</i>
1835	*Phillips, Sir George Richard, Bart., 22, <i>Hill-street, Berkeley-square, W.</i>
1859	Phillips, Henry James, 4, <i>Ludgate-hill, E.C.</i>

Year of Election.	
1877	Phillips, John Walter, M.B., L.R.C.S., 30, <i>Stanley-street, West Melbourne, Victoria.</i>
1878	Phipps, Pickering, 6, <i>Collingtree Grange, Northampton.</i>
1871	*Pickering, John, F.R.G.S., F.S.A., <i>The Abnalls, Mount Preston, Leeds.</i>
1873	Pickstone, William, <i>Maesmynan Hall, Holywell.</i>
1878	*Pim, Joseph Todhunter, <i>Greenbank, Monkstown, County Dublin.</i>
1838	*Pinckard, George Henry, J.P., F.I.A., 12, <i>Grove-road, St. John's-wood, N.W.</i>
1879	Pixley, Francis William, <i>Road Club, 4, Park-place, St. James's, S.W.</i>
1861	Plowden, W. Chicele ( <i>Commissioner 1st Division</i> ), <i>Meeruth District, Mussoorie, N.W.P., India.</i>
1869	POCHIN, HENRY DAVIS, <i>Bodnant Hall, Conway.</i>
1874	Ponsonby, The Hon. Frederick George Brabazon, M.A., 3, <i>Mount-street, Grosvenor-square, W.</i>
1879	Poole, William, <i>Newton Avenue, Longsight, Manchester.</i>
1860	Potter, Edmund, F.R.S., 64, <i>Queen's-gate, South Kensington, S.W.</i>
1879	*Powell, Francis Sharp, F.R.G.S., ( <i>Horton Old Hall, Bradford</i> ), 1, <i>Cambridge-square, Hyde Park, W.</i>
1871	Power, Edward, 16, <i>Southwell-gardens, Kensington, W.</i>
1877	*Prance, Reginald Heber, <i>Frognal, Hampstead, N.W.</i>
1877	Praschkauer, Maximilian, <i>Swiss Cottage, Herne Hill, S.E.</i>
1867	*Pratt, Robert Lindsay, 80, <i>Bondgate, Darlington.</i>
1877	Preen, Harvey Edward, <i>Kidderminster.</i>
1849	Presant, John, 13, <i>St. James's-square, S.W.</i>
1879	Price, James, F.R.G.S., 53, <i>Redcliffe-gardens, South Kensington, W.</i>
1874	Price, John Charles, <i>Compton Cottage, Maryon-road, Old Charlton, Kent, S.E.</i>
1871	Puleston, John Henry, M.P., 2, <i>Bank-buildings, E.C.; Westminster Palace Hotel, S.W.</i>
1837	*PURDY, FREDERICK, 35, <i>Victoria-road, Kensington, W.</i>

Year of Election.	
1879	Quail, Jesse, 60, <i>White Rock-street, Liverpool, E.</i>
1874	Quain, Richard, M.D., F.R.S., F.R.C.P., 67, <i>Harley-street, W.</i>
1872	*Rabino, Joseph, ( <i>care of Baron J. Vitta</i> ), 8, <i>Rue Lafont, Lyons.</i>
1858	*Radstock, The Right Honourable Lord, <i>East Sheen, Mortlake, S.W.</i>
1877	Raikes, Captain George Alfred, F.S.A., F.R. His. Soc., 63, <i>Belsize-park, Hampstead, N.W.</i>
1864	*Raleigh, Samuel, 9, <i>St. Andrew-square, Edinburgh.</i>
1860	Ramsay, Alexander Gillespie, F.I.A., <i>Canada Life Assurance, Hamilton, Canada West.</i>
1874	Ramsden, Sir James, of Barrow, D.L., <i>Furness Abbey, Lancashire.</i>
1879	Ranken, William Bayne, 37, <i>Stanhope-gardens, Queen's Gate, S.W.</i>
1880	Rankin, James, M.P., 35, <i>Ennismore-gardens, Prince's Gate, S.W.</i>
1865	Ratcliff, Colonel Charles, J.P., <i>Athenæum Club, S.W.; and Wyddrington, Birmingham.</i>
1859	Rathbone, P. H., <i>Greenbank Cottage, Liverpool.</i>
1878	Rathbone, William, 18, <i>Prince's-gardens, Prince's-gate, S.W.</i>
1874	*Ravenstein, Ernest George, F.R.G.S., 10, <i>Lorn-road, Brixton, S.W.</i>
1877	*Rawlins, Thomas, 45, <i>King William-street, E.C.</i>
1870	Rawlinson, Robert, C.B., 11, <i>Boltons, West Brompton, S.W.</i>
1835	RAWSON, SIR RAWSON W., C.B., K.C.M.G., ( <i>c/o H. G. Rawson, Esq.,</i> <i>2, Gillingham-street, Eccleston-square, S.W.</i> )
1880	Readdy, George, <i>Belvedere Cottage, Eastdown-park, Lewisham, S.E.</i>
1875	Record, John, 23, <i>Kenninghall-road, Clapton, E.</i>
1856	Redgrave, Alexander, C.B., <i>Factory Inspectors' Office, Whitehall, S.W.</i>
1867	Reid, Herbert Lloyd, 4, <i>Glebe-villas, Mitcham.</i>
1862	Reynolds, Frederick, <i>c/o London Institution, Finsbury Circus, E.C.</i>



Year of Election.	
1879	Rhodes, John G., <i>Oakdene, Beckenham, Kent.</i>
1876	Rice, Thomas Fitzroy, <i>Horseheads, New York, U.S.A.</i>
1878	Richards, George, L.R.C.P., Edin., <i>Mervyn Lodge, Ashfields, Ross, Herefordshire.</i>
1879	Richardson, George Gibson, J.P., <i>Oak Lawn, Reigate.</i>
1873	Ripon, The Most Hon. the Marquess of, K.G., F.R.S. &c., <i>1, Carlton-gardens, S.W.</i>
1880	Roberts, A. F., <i>49, Bow-lane, Cheapside, E.C.</i>
1868	Robinson, Sir William Rose, K.C.S.I., <i>50, Norfolk-square, Hyde-park, W.</i>
1880	*Ronald, Byron L., <i>14, Upper Phillimore-gardens, W.</i>
1880	Ronald, Robert Bruce, <i>29, Pembridge-square, W.</i>
1873	*Rosebery, The Right Hon. the Earl of, <i>107, Piccadilly, W.</i>
1834	*Ross, David, of Bladensburg, <i>Rostrevor, Co. Down, Ireland.</i>
1880	Roth, Henry Ling, <i>Foulden, Mackay, Queensland.</i>
1865	Ruck, George T., <i>The Hawthorns, Dorville-road, Lee, S.E.</i>
1878	Rumley, George Chisnall, <i>Lawn Cottage, Shepherd's Bush Green, W.</i>
1879	Runtz, John, <i>Linton Lodge, Lordship-road, Stoke Newington, N.</i>
1878	Russell, Richard F., <i>8, John-street, Adelphi, W.C.</i>
1874	Rutherford, Charles, <i>29, St. Swithin's-lane, E.C.</i>
1873	*Salisbury, The Most Hon. the Marquess of, P.C., F.R.S., <i>20, Arlington-street, W.</i>
1875	*Salomons, Sir David Lionel, Bart., J.P., <i>Broom-hill, Tunbridge Wells.</i>
1876	Salt, Thomas, <i>Weeping Cross, Stafford.</i>
1868	Samuelson, Bernhard, M.P., <i>56, Prince's-gate, Hyde-park, S.W.</i>
1860	Sargant, William Lucas, <i>Edgbaston, Birmingham.</i>
1877	Saunders, Charles Edward, M.D., <i>21, Lower Seymour-street, Portman-square, W.</i>

Year of Election.	
1874	Saunders, Francis, 6, <i>Limes-grove, Lewisham, S.E.</i>
1852	Saunders, James Ebenezer, jun., F.G.S. 9, <i>Finsbury-circus, E.C.</i>
1879	Saunders, William, <i>Mount View, Streatham, S.W.</i>
1869	Sayle, Philip, F.R.H.S., 4, <i>St. Paul's Church-yard, E.C.</i>
1877	Schiff, Charles 36, <i>Sackville-street, Piccadilly, W.</i>
1877	Schneidau, Charles John, 6, <i>Westwick-gardens, West Kensington-park, W.</i>
1880	Schreiber, Charles, M.P., <i>Langham House, 11, Portland-place, W.</i>
1878	Scott, Arthur J., 22, <i>Grafton-street, New Bond-street, W.</i>
1875	Scott, Sir Edward Henry, Bart., J.P., 27, <i>Grosvenor-square, W.</i>
1880	*Seeley, Charles, jun., M.P., <i>Sherwood Lodge, Nottingham.</i>
1869	Seyd, Ernest, 38, <i>Lombard-street, E.C.</i>
1873	Seyd, Richard, 38, <i>Lombard-street, E.C.</i>
1841	SHAFTESBURY, THE RIGHT HON. THE EARL OF, K.G., ( <i>Honorary Vice-President</i> ), 24, <i>Grosvenor-square, W.</i>
1879	Shepherd, Wallwyn Poyer B., M.A., 24, <i>Old Buildings, Lincoln's Inn, W.C.</i>
1871	Sidgwick, Henry, <i>Trinity College, Cambridge.</i>
1878	Simmonds, G. H., 1, <i>Whitehall, S.W.</i>
1850	Singer, Charles Douglas, 9, <i>The Terrace, Upper Clapton, E.</i>
1878	*Slaughter, Mihill, 42, <i>Binfield-road, Clapham, S.W.</i>
1877	Sloley, Robert Hugh. 121, <i>Bishopsgate-street Within, E.C.</i>
1869	Smee, Alfred Hutcheson, M.R.C.S., 7, <i>Finsbury-circus, E.C.</i>
1878	*Smith, Charles, M.R.I.A., F.G.S., Assoc. Inst. C.E., <i>Barrow-in-Furness.</i>
1874	Smith, Edward, <i>St. Mildred's House, Poultry, E.C.</i>
1871	Smith, E. Cozens, 1, <i>Old Broad-street, E.C.</i>
1878	*Smith, George, LL.D., C.I.E., <i>Serampore House, Napier-road, Edinburgh.</i>

Year of Election.	
1880	Smith, Thomas Sherwood, 21, <i>Richmond-terrace, Clifton.</i>
1877	Smith, Howard S., 37, <i>Bennett's Hill, Birmingham.</i>
1878	Smith, James, <i>South Indian Railway, Negapatam, Madras.</i>
1880	Smith, Jervoise, 1, <i>Lombard-street, E.C.</i>
1877	Smith, John, 8, <i>Old Jewry, E.C.</i>
1879	Smith, J. Fisher, 76, <i>Cheapside, E.C.</i>
1873	Smith, Col. John Thomas, R.E., F.R.S., F.I.A., 10, <i>Gledhow Gardens, Wetherby-road, S. Kensington, S.W.</i>
1867	*Smith, The Right Honourable William Henry, M.P., <i>Admiralty, Whitehall, S.W.</i>
1878	Souter, John Clement, M.D., F.C.S.,
1855	Sowray, John Russell, <i>Office of Woods, 1, Whitehall-place, S.W.</i>
1877	Spalding, Samuel, <i>South Darenth, Kent.</i>
1873	Spence, John Berger, 31, <i>Lombard-street, E.C.</i>
1867	*Spencer, Robert James, <i>High-street, Portsmouth.</i>
1876	Spensley, Howard, <i>Thatched House Club, St. James's-street, S.W.</i>
1874	Spicer, James, J.P., <i>Harts, Woodford, Essex.</i>
1856	*Sprague, Thomas Bond, M.A., F.I.A., 26, <i>St. Andrew-square, Edinburgh.</i>
1872	Spriggs, Joseph, <i>Dale Cottage, Foxton, near Market Harbro'.</i>
1880	Stafford, Sir Edward William, K.C.M.G., 48, <i>Stanhope-gardens, S.W.</i>
1856	*Stainton, Henry Tibbats, <i>Mountsfield, Lewisham, S.E.</i>
1877	Stanford, Edward, 55, <i>Charing Cross, S.W.</i>
1877	Staples, Sir Nathaniel Alexander, Bart., <i>Lissan, Cookstown, Tyrone, Ireland.</i>
1880	Stark, James, 17, <i>King's Arms-yard, E.C.</i>
1877	Startin, James, M.R.C.S., 17, <i>Sackville-street, W.</i>
1880	Stephens, William Davies, 4, <i>Abbotsford-terrace, Newcastle-on-Tyne.</i>
1877	Stone, William A., 90, <i>Cannon-street, E.C.; West Hill Lodge, Dartford, Kent.</i>

Year of Election.	
1855	*Stott, John, F.I.A., 12, <i>Essex-villas, Kensington, W.</i>
1865	Strachan, Thomas Young, F.I.A., 18, <i>Grainger-street West, Newcastle-on-Tyne.</i>
1872	Strachey, General Richard, R.E., C.S.I., F.R.S., <i>India Office, Westminster, S.W.</i>
1880	Strutt, Hon. Frederick, <i>Milford House, near Derby.</i>
1878	Stubbins, Thomas K., <i>Market-street, Bradford, Yorks.</i>
1880	*Summers, William, M.P. ( <i>Sunyside, Ashton-under-Lyne</i> ), 12, <i>St. James's-place, S.W.</i>
1873	Tait, Lawson, F.R.C.S., 7, <i>Great Charles-street, Birmingham.</i>
1859	*Tait, Patrick Macnaghten, 39, <i>Belsize Park, N.W.</i> ; and <i>Oriental Club, W.</i>
1880	Taylor, George, 17, <i>Abchurch-lane, E.C.</i>
1877	Taylor, John E., 12, <i>Queen's Gate-gardens, South Kensington, S.W.</i>
1873	Taylor, Peter Alfred, M.P., 22, <i>Ashley-place, Westminster, S.W.</i>
1838	*Taylor, General Pringle, K.H.,
1880	Temple, Sir Richard, Bart., G.C.S.I., D.C.L., &c., <i>Athenæum Club, Pall Mall, S.W.</i>
1878	Thomas, Rev. R. D.,
1879	Thomas, William Angell, <i>King's College, Strand, W.C.</i>
1879	Thomas, W. Cave, 53, <i>Welbeck-street, Cavendish-square, W.</i>
1878	Thompson, Alfred Boyle, M.R.C.P., 18, <i>Serjeant's-inn, Temple, E.C.</i>
1878	Thompson, Captain C. Halford, (late R.A.), 9, <i>Colleton-crescent, Exeter.</i>
1864	*Thompson, Henry Yates, 26a, <i>Bryanston-square, W.</i>
1868	Thomson, James, 35, <i>Nicholas-lane, E.C.</i>
1871	Thomson, Thomas D., 57, <i>Moorgate-street, E.C.</i>
1877	Tiddy, Samuel Vesey, 110, <i>Cannon-street, E.C.</i>
1879	Tipping, William, <i>Oakfield House, Ashton-under-Lyne.</i>



Year of Election.	
1855	Tomline, Colonel George, 1, <i>Carlton House-terrace, S.W.</i>
1843	Tottie, John William, <i>Coniston Hall, Bell Busk, Leeds.</i>
1868	*Treatt, Frank Burford, <i>Immigration Office, Sydney, N.S. Wales.</i>
1868	Tritton, Joseph Herbert, 54, <i>Lombard-street, E.C.</i>
1880	Tupp, Alfred Cotterill, ( <i>Indian Civil Service</i> ), <i>Accountant-General, Madras.</i>
1878	Turnbull, Alexander, 118, <i>Belsize-park-gardens, N.W.</i>
1867	Turner, Thomas, <i>Ashley House, Kingsdown, Bristol.</i>
1878	Turton, William Woolley, <i>The Hollies, Bickley, Kent.</i>
1880	Twist, John Charles, 78, <i>Union-road, Hurst Brook, Ashton-under-Lyne.</i>
1841	Tyndall, William Henry, 92, <i>Cheapside, E.C.</i>
1873	Underdown, Robert George, <i>London-road Railway Station, Manchester.</i>
1877	*Umlin, Richard Denny, 22, <i>Stafford-terrace, Phillimore-gardens, W.</i>
1842	Valpy, Richard, 5, <i>Rutland-gate, S.W.</i>
1868	Vanderbyl, Philip, 51, <i>Porchester-terrace, W.</i>
1880	Van de Linde, Gérard, A.C.A., 12, <i>Laurence Pountney-lane, Cannon-street, E.C.</i>
1874	Vian, William John, 64, <i>Cornhill, E.C.</i>
1876	Vigers, Robert, 4, <i>Frederick's-place, Old Jewry, E.C.</i>
1877	Vine, John Richard Somers, 45, <i>St. Paul's-road, Camden-square, N.W.</i>
1873	Vivian, Major Quintus, D.L., F.R.G.S., 17, <i>Chesham-street, S.W.</i>
1861	Waddell, James, 1, <i>Queen Victoria-street, E.C.</i>
1873	Waddy, Henry Edward, L.R.C.P., M.R.C.S., 2, <i>Clarence-street, Gloucester.</i>

Year of Election.	
1877	Wakeford, Henry, <i>Home Office, Whitehall, S.W.</i>
1857	*WALFORD, CORNELIUS, F.I.A., 86, <i>Belsize-park-gardens, N.W.</i>
1871	*Walker, R. Bailey, <i>The Grove, Didsbury, Manchester.</i>
1877	Wallington, Charles, 51, <i>Moorgate-street, E.C.</i>
1868	Wallis, Charles, J., 62, <i>Doughty-street, W.C.</i>
1880	Wallis, E. White, F.M.S., 1, <i>Springfield-road, St. John's Wood, N.W.</i>
1876	Walter, Arthur Fraser, 15, <i>Queen's Gate-terrace, S.W.</i>
1877	Walter, Captain Edward, <i>Commissionaires' Office, 419, Strand, W.C.</i>
1850	Walter, John, M.P., 40, <i>Upper Grosvenor-street, W.</i>
1879	Wansey, Arthur H., <i>Sambourne, Stoke Bishop, Bristol.</i>
1873	Waring, Charles, 19B, <i>Grosvenor-square, S.W.</i>
1865	Waterhouse, Edwin, B.A., 44, <i>Gresham-street, E.C.</i>
1878	Watherston, Edward J., 12, <i>Pall Mall East, S.W.</i>
1874	Watson, James, F.R.G.S., 24, <i>Endsleigh-street, Tavistock-square, W.C.</i>
1873	Watson, J. Forbes, M.A., M.D., LL.D. <i>India Museum, South Kensington, W.</i>
1865	Watson, William West, <i>City Chamberlain, Glasgow.</i>
1865	Webster, Alphonsus, 44, <i>Mecklenburg-square, W.C.</i>
1873	Webster, James Hume, 14, <i>Chapel-street, Park-lane, W.</i>
1869	Weguelin, Christopher, 57½ <i>Old Broad-street, E.C.</i>
1873	Weguelin, Thomas Matthias, 14, <i>Devonshire-street, Portland-place, W.</i>
1879	Weir, William, 38, <i>South Audley-street, W.</i>
1873	*Welby, Reginald Earle, C.B., <i>The Treasury, Whitehall, S.W.</i>
1879	Welch, John Kemp, J.P., <i>Clock House, Clapham-common, S.W.</i>
1855	Weldon, James Walton, 1, <i>St. James's-square, S.W.</i>
1873	Wellington, His Grace the Duke of, K.G., &c., &c., <i>Apsley House, Piccadilly, W.</i>

Year of Election.	
1873	Wells, W. Lewis, 66, <i>Old Broad-street, E.C.</i>
1855	WELTON, THOMAS ABERCROMBIE, (5, <i>Moorgate-street, E.C.</i> ), 6, <i>Offerton-road, Clapham, S.W.</i>
1879	Wenley, James Adams, <i>Bank of Scotland, Bank-street, Edinburgh.</i>
1876	Westgarth, William, 28, <i>Cornhill, E.C.</i>
1879	*Westlake, John, Q.C., LL.D., 16, <i>Oxford-square, W.</i>
1878	Wharton, James, 10, <i>Buckland-crescent, Belsize-park, N.W.</i>
1859	Whitbread, Samuel, M.P., 10, <i>Ennismore-gardens, Princes-gate, S.W.</i>
1876	Whitcher, John, Jr., F.I.A., 81, <i>King William-street, E.C.</i>
1868	White, James, 8, <i>Thurloe-square, South Kensington, S.W.</i>
1863	White, Leedham, 44, <i>Onslow-gardens, S.W.</i> ; 85, <i>Gracechurch-street, E.C.</i>
1879	White, Robert Owen, J.P., <i>The Priory, Lewisham, S.E.</i>
1871	White, William, 70, <i>Lombard-street, E.C.</i>
1878	Whiteford, William, 3, <i>Temple-gardens, E.C.</i>
1873	Whitehead, Jeffery, 39, <i>Throgmorton-street, E.C.</i>
1879	*Whitwill, Mark, J.P., <i>Redland House, Durdham-park, Bristol.</i>
1878	Wilcox, William, L.R.C.P. (Edin.), M.R.C.S., <i>Holly House, North Walsham, Norfolk.</i>
1875	Wilkinson, Thomas Read, <i>Manchester and Salford Bank, Manchester.</i>
1860	Willans, John Wrigley, 2, <i>Headingley-terrace, Leeds.</i>
1879	Williams, Edward, <i>Cleveland Lodge, Middlesborough.</i>
1880	Williams, Colonel E. C. J., R.E., C.I.E., <i>India Office, Whitehall.</i>
1864	Williams, Frederick Bessant, 2, <i>Ludgate Hill, E.C.</i>
1870	Williams, H. R., 3, <i>Lime-street, E.C.</i> ; and <i>Oak Lodge, Highgate, N.</i>
1876	Williams, John Worthey, 5, <i>Marlborough-road, Upper Holloway, N.</i>
1877	Williams, Richard Price, 38, <i>Parliament-street, S.W.</i>
1875	Wilson, Edwards D. J., M.A., <i>Airlie House, The Grove, Camberwell, S.E.</i>

Year of Election.	
1874	*Wilson, Robert Porter, 5, <i>Cumberland-terrace, Regent's-park, N.W.</i>
1878	Wilton, Francis, M.R.C.S., <i>Ticehurst, Sussex.</i>
1872	*Winch, William R., <i>North Mymms Park, Hatfield, Herts.</i>
1868	Wood, H. W. I. ( <i>Calcutta</i> ), <i>Care of Messrs. Richardson, 13, Pall Mall, S.W.</i>
1877	Woodrow, T. J., <i>Great Eastern Railway, Liverpool-street, E.C.</i>
1873	Woods, Henry, <i>Warnford Park, Bishop's Waltham, Hants.</i>
1838	Woolhouse, Wesley Stoker Barker, F.R.A.S., <i>Alwyne Lodge, Alwyne-road, Canonbury, N.</i>
1874	Woolner, Thomas, R. A., 29, <i>Welbeck-street, Cavendish-square, W.</i>
1878	Worsfold, Rev. J. N., M.A., <i>Haddlesey Rectory, near Selby, Yorkshire.</i>
1880	Wren, Walter, 7, <i>Powis-square, W.</i>
1877	Wright, George, 9, <i>Craig's-court, Charing Cross, S.W.</i>
1838	*Wyatt-Edgell, Rev. Edgell, 40, <i>Lower Grosvenor-street, W.; Stanford Hall, Rugby.</i>
1872	Yeatman, Morgan, <i>Shawfield, Bromley, Kent.</i>
1879	Yeats, John, LL.D., 7, <i>Beaufort-square, Chepstow.</i>
1879	Yee, Fung, 49, <i>Portland-place, W.</i>
1877	*Youll, John Gibson, <i>Jesmonds-road, Newcastle-on-Tyne.</i>
1849	*Young, Charles Baring, 12, <i>Hyde-park Terrace, W.</i>

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\* \* \* *The Executive Committee request that any inaccuracy in the foregoing list may be pointed out to the ASSISTANT SECRETARY and that all changes of address may be notified to him, so that delay in forwarding communications and the publications of the Society may be avoided.*



## HONORARY MEMBERS.

HIS ROYAL HIGHNESS THE PRINCE OF WALES, K.G.,  
*Honorary President.*

## EUROPE.

## Austria and Hungary.

- Budapest** ..... M. CHARLES KELETI, *Chef du Bureau Royal Hongrois, de Statistique. Conseiller Ministériel.*
- Vienna** ..... DR. HUGO FRANZ BRACHELLI, *Chef du Bureau de Statistique au Ministère de Commerce.*
- „ ..... S. E. M. le BARON de CZERNIG, *Conseiller intime actuel de S. M. Imp. et Royal.*
- „ ..... PROFESSOR FR. XAVIER von NEUMANN-SPALLART, D.C.L., *Professor of Political Economy and Statistics, Agricultural College, University of Vienna; Imperial Councilor; Member of the Imperial Statistical Commission; Honorary Member of the Statistical Society of Paris and of the Cobden Club.*
- „ ..... M. MAX WIRTH, *Ancien Chef du Bureau de la Statistique, Suisse.*

## Belgium.

- Brussels** ..... SIR HENRY PAGE TURNER BARRON, BART., *Secretary of Legation, British Embassy.*
- „ ..... M. XAVIER HEUSCHLING, *Chef de Division au Ministère de l'Intérieur du Royaume de Belgique, Secrétaire de la Commission Centrale de Statistique.*
- „ ..... M. le DR. E. JANSSENS, *Service d'Hygiène, Inspecteur du Santé de la Ville de Bruxelles, Membre Secrétaire de la Commission Provinciale, et de la Commission Locale de Statistique à Bruxelles.*
- „ ..... M. VICTOR MISSON, *Ancien President de la Cour des Comptes de Belgique, &c.*

## Denmark.

- Copenhagen** .... PROFESSOR FALBE HANSEN, *Professor of Political Economy and Statistics in the University of Copenhagen.*
- „ .... DR. SCHLEISNER, *Medical Officer of Health.*

## France.

- Paris** ..... M. le Dr. JACQUES BERTILLON, *Professeur de Démographie à l'Ecole d'Anthropologie; Chef de la Statistique Municipale de Paris; Lauréat de l'Académie des Sciences, &c., &c.*

<b>Paris</b> .....	M. MAURICE BLOCK.
„ .....	M. le Dr. ARTHUR CHERVIN, <i>Member of the Statistical Society of Paris; General Secretary of the International Congress of Demography.</i>
„ .....	M. MAXIMIM DELOCHE, <i>Membre de l'Institut, Directeur de la Statistique Générale de la France.</i>
„ .....	M. JOSEPH GARNIER, <i>Membre de l'Institut, Professeur d'Économie Politique à l'École des Ponts et Chaussées, Rédacteur en chef du Journal des Économistes.</i>
„ .....	M. CLEMENT JUGLAR, <i>President Sortant de la Société de Statistique de Paris.</i>
„ .....	M. ALFRED LEGOYT, <i>Ancien Directeur de la Statistique Générale.</i>
„ .....	M. E. LEVASSEUR, <i>Membre de l'Institut, Professeur au Collège de France.</i>
„ .....	M. DE PARIEU, <i>Membre de l'Institut, Ancien Député, Sénateur, et Ministre.</i>
„ .....	M. LE PLAY, <i>Ancien Sénateur.</i>
„ .....	M. le PRÉSIDENT DE LA SOCIÉTÉ DE STATISTIQUE DE PARIS.
„ .....	THE HON. M. JÉAN BAPTISTE LÉON SAY, <i>President of the Senate of the Republic of France.</i>

### Germany.

<b>Bavaria</b> .....	DR. GEORGE MAYR, <i>Formerly Director of the Royal Bureau of Statistics; Ministerialrath und Universitäts Professor.</i>
„ .....	DR. G. CHARLES LEOPOLD SEUFFERT, <i>Chief Inspector and Director of the Royal Custom House at Simbach.</i>
<b>Berlin</b> .....	DR. CHARLES BECKER, <i>Geheimer oberregierungs-rath. Director des Kaiserl.: Statistischen Amts.</i>
„ .....	DR. ERNEST ENGEL, <i>Director of the Royal Statistical Office of Prussia.</i>
<b>Frankfurt</b> .....	THE PRESIDENT OF THE STATISTICAL SOCIETY OF FRANKFURT.

### Great Britain and Ireland.

<b>Dublin</b> .....	THE PRESIDENT OF THE STATISTICAL AND SOCIAL ENQUIRY SOCIETY OF IRELAND.
<b>Manchester</b> .....	THE PRESIDENT OF THE MANCHESTER STATISTICAL SOCIETY.

### Greece.

<b>Athens</b> .....	A. MANSOLAS, <i>Chef de Division, Directeur du Bureau de Statistique Hellénique.</i>
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## Italy.

- Genoa** ..... PROFESSORE GEROLAMO BOCCARDO, *Senator of the Kingdom of Italy; Knight of Civil Merit, &c., &c.*
- Padova** ..... SIGNOR EMILIO MORPURGO, *Professore Ordinario di Statistica nella R. Università di Padova; Membro della Giunta Centrale di Statistica, &c.*
- Pavia** ..... SIGNOR LUIGI COSSA, *Professeur Ordinaire d'Economie Politique à l'Université de Pavia; Docteur en Droit; Officier de l'Ordre de la Couronne d'Italie, &c., &c.*
- Rome** ..... PROFESSORE LUIGI BODIO, *Directeur de la Statistique Générale d'Italie.*
- „ ..... PROFESSORE CESARE CONTINI, *Membre de la Société Statistique de Paris. Grand Chevalier de l'Ordre de Sa Majesté le Roi d'Italie.*
- „ ..... SIGNOR CESARE CORRENTI, *Membre de la Chambre des Députés; Vice-Président de la Commission Centrale de Statistique.*
- „ ..... MESSEDAGLIA, SIGNOR ANGELO, *Professore di Statistica nella Università di Roma. (Member of the Italian Parliament.)*
- „ ..... IL MARCHESE AVVOCATO ERMENEGILDO DE CINQUE QUINTILI, *Sécrétaire Général de la Commission des Hôpitaux Romains.*
- Turin** ..... PROFESSORE GIOVANNI FLECHIA, *Président de la Faculté de Philosophie et Professeur à l'Université de Turin.*
- Venice** .... SIGNOR FRANCESCO FERRARA, *Député au Parlement, Directeur de l'Ecole Supérieure de Commerce.*

## Portugal.

- Lisbon** ..... M. A. J. D'AVILA, *Ministre d'État honoraire, Conseiller d'État, et Député des Cortès.*

## Russia.

- St. Petersburg** HIS EXCELLENCY M. SEMENOW, *Directeur du Comité Central de Statistique, Conseiller d'État actuel.*
- „ M. le DR. J. B. VERNADSKI, *Conseiller d'État actuel, Ex-professeur.*
- „ M. A. VESSELOVSKY, *Sécrétaire du Comité Scientifique du Ministère Impérial des Finances.*

## Spain.

- Madrid** ..... SEÑOR DON JOSÉ MAGAZ Y JAIME.

## Sweden and Norway.

- Christiania**..... PROFESSOR T. H. ASCHEHOUG, *Membre de l'Assemblée Nationale de la Norvège.*
- „ ..... M. A. N. KIAER, *Chef du Bureau de Statistique au Ministère de l'Intérieur, Membre de la Société Royale des Sciences.*
- Stockholm** ..... M. le DR. FREDERIK THEODOR BERG, *Ancien Chef du Bureau Central de Statistique de la Suède.*
- „ ..... M. EDWARD SCHEUTZ, *Ingénieur Civil.*

## Switzerland.

- Geneva** ..... M. MALLET.

## Turkey.

- Constantinople.** HIS EXCELLENCY AHMED VEFYK PASHA, *Honorary Member of the Statistical Society of Paris.*
- Philippopolis** .... THOMAS MICHELL, Esq., C.B., F.R.G.S.

## AMERICA.

## Dominion of Canada.

- Ottawa** ..... JOHN LANGTON Esq., *Auditor-General.*
- „ ..... EDWARD YOUNG, Esq., *formerly Chief of the Bureau of Statistics, United States of America, now, Secretary of the Board of Customs of Canada.*

## United States.

- Albany, N.Y.** .... THE HON. WILLIAM BARNES, *Counsellor-at-Law (Ex-Superintendent of the Insurance Department).*
- Dorchester, Mass.** DR. EDWARD JARVIS, A.M., *President of the American Statistical Association, Boston.*
- New Haven, Conn.** FRANCIS A. WALKER, Esq., M.A., *Professor of Political Economy, Yale College.*
- Norwich, Conn.** THE HON. DAVID A. WELLS, *President of the American Association for the Promotion of Social Science, Corresponding Member of the Institute of France.*
- Taunton, Mass.** JOHN E. SANFORD, Esq., *Speaker of the House of Representatives. Insurance Commissioner.*
- Washington** .... THE HON. CHARLES F. CONANT, *Assistant Secretary to the Treasury of the United States.*



## AUSTRALASIA.

## New South Wales.

**Sydney** ..... EDWARD GRANT WARD, Esq., *Registrar-General*.

## New Zealand.

**Wellington** ..... JAMES HECTOR, Esq., M.D., F.R.S.

## Queensland.

**Brisbane** ..... HENRY JORDAN, Esq., *Registrar-General*.

## South Australia.

**Adelaide** ..... JOSIAH BOOTHBY, Esq., C.M.G., *Under Secretary  
and Government Statist of South Australia*.

## Tasmania.

**Hobart Town** .... E. SWARBRECK HALL, Esq., M.R.C.S.

„ .... EDWIN CRADOCK NOWELL, Esq.,  
*Government Statistician*.

## Victoria.

**Melbourne** ..... HENRY HEYLYN HAYTER, Esq.,  
*Government Statist*.

„ ..... WILLIAM HENRY ARCHER, Esq., F.I.A.,  
F.L.S., &c.

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NOTE.—The Executive Committee request that any inaccuracies in the foregoing List of HONORARY MEMBERS may be pointed out, and that all changes of address may be notified to the Secretary, so that delay in forwarding communications and the publications of the Society may be avoided.

# INDEX TO RULES.

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## RULE

1. The Objects of the Society.
  2. Society to consist of Fellows and Honorary Members.
  3. No. of Fellows unlimited ; Hon. Members not to exceed 70.
  4. Fellows—Candidates to be proposed by two or more Fellows.
  5. Do. to be elected by Ballot.
  6. Do. on Admission may attach F.S.S. to their Names.
  7. Honorary Members, Proposed by Council ; Elected by Ballot.
  8. Fellows, to pay an Annual Subscription or a Composition.
  9. Do. how disqualified. Written notice of withdrawal required.
  10. Do. and Honorary Members, Expulsion of.
  11. Trustees. Property of Society, to be vested in Three.
  12. President, Council, and Officers, Number and Particulars of.
  13. } Do. do. do. Election and Qualifications of.
  14. }
  15. Do. do. do. Extraordinary Vacancies of.
  16. Committees, may be appointed by Council.
  17. Meetings, Ordinary and Anniversary, when to be held.
  18. Ordinary Meetings, Business of. Strangers may be introduced.
  19. Anniversary Meetings, Business of.
  20. Special General Meetings may be called.
  21. Auditors, Appointment and Duties of.
  22. President, Duties of. To have a Casting Vote.
  23. Treasurer, Duties of, subject to the Council. 10
  24. Secretaries, Duties of.
  25. Vice-Presidents, Powers of.
  26. Council, Duties of, in Publishing Papers and Expending Funds.
  27. } Do. Powers of, to frame Regulations not inconsistent
  28. } with these Rules.
  29. Do. to publish a Journal of the Transactions of the Society.
  30. Right of Property reserved in all Communications received.
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# RULES OF THE STATISTICAL SOCIETY.

## *Objects of the Society.*

1. THE Statistical Society was established to collect, arrange, digest, and publish facts illustrating the condition and prospects of society, in its material, social and moral relations. These facts are for the most part arranged in tabular forms, and in accordance with the principles of the numerical method.

The Society not only collects new materials, but condenses, arranges, and publishes those already existing, whether unpublished or published in diffuse and expensive forms, in the English or in any foreign language.

The Society likewise promotes the discussion of legislative and other public measures from the statistical point of view. These discussions form portions of the Transactions of the Society.

## *Constitution of the Society.*

2. The Society consists of Fellows and Honorary Members, elected in the manner laid down in the following rules.

## *Number of Fellows and Honorary Members.*

3. The number of Fellows shall be unlimited. Foreigners or British subjects of distinction residing abroad may be admitted as Honorary Members: of whom the number shall not be more than seventy at any one time.

## *Proposal of Fellows.*

4. Every Candidate for admission as a Fellow of the Society, shall be proposed by two or more Fellows, who, shall certify from their personal knowledge of him or of his works, that he is a fit person to be admitted a Fellow of the Statistical Society. Every such certificate having been read and approved at a Meeting of the Council, shall be suspended in the meeting-room of the Society until the following Ordinary Meeting, at which the vote shall be taken upon it.

## *Election of Fellows.*

5. In the election of Fellows, the votes shall be taken by ballot. No person shall be admitted unless at least sixteen Fellows vote, and unless he have in his favour three-fourths of the Fellows voting.

## *Admission of Fellows.*

6. Every Fellow elect shall appear for his admission on or before the third Ordinary Meeting of the Society after his election, or within such time as shall be granted by the Council.

The manner of admission shall be thus:—

Immediately after the reading of the minutes, the Fellow elect, having first paid his subscription for the current year or his composition, shall sign the obligation contained in the Fellowship-book, to the effect following:—

“We, who have underwritten our names, do hereby undertake, each for himself, that we will endeavour to further the good of the Statistical Society for improving Statistical Knowledge, and the ends for which the same has been founded; that we will be present at the Meetings of the Society as often as conveniently we can, and that we will keep and fulfil the Rules and Orders of this Society: provided that whenever any one of us shall make known, by writing under his hand, to the President for the time being, that he desires to withdraw from the Society, he shall be free thenceforward from this obligation.”

Whereon the President, taking him by the hand, shall say,—“*By the authority and in the name of the Statistical Society I do admit you a Fellow thereof.*”

Upon their admission Fellows shall have the right of attaching to their names the letters F.S.S.

*Admission of Honorary Members.*

7. There shall be Two Meetings in the year, on such days as shall be hereafter fixed by the Council, at which *Honorary Members* may be elected.

No Honorary Member can be recommended for election but by the Council. Any Member of the Council may propose a Foreigner or British subject of distinction residing abroad at any Meeting of the Council, delivering at the same time a written statement of the qualifications, offices held by, and published works of the person proposed; and ten days' notice at least shall be given to every Member of the Council, of the day on which the Council will vote by ballot on the question whether they will recommend the person proposed. No such recommendation to the Society shall be adopted unless at least three-fourths of the votes are in favour thereof.

Notice of the recommendation shall be given from the chair at the Meeting of the Society next preceding that at which the vote shall be taken thereon. No person shall be elected an Honorary Member unless sixteen Fellows vote and three-fourths of the Fellows voting be in his favour.

The Council shall have power to elect as Honorary Members, the President for the time being of the Statistical Societies of Dublin, Manchester, and Paris, and the President of any other Statistical Society at home or abroad.

*Payments by Fellows.*

8. Every Fellow of the Society shall pay a yearly subscription of *Two Guineas*, or may at any time compound for his future yearly payments by paying at once the sum of Twenty Guineas.\*

*Defaulters.—Withdrawal of Fellows.*

9. All yearly payments are due in advance on the 1st of January, and if any Fellow of the Society have not paid his subscription before the 1st of July, he shall be applied to in writing by the Secretaries, and if the same be not paid before the 1st of January of the second year, a written application shall again

be made by the Secretaries, and the Fellow in arrear shall cease to receive the Society's publications, and shall not be entitled to any of the privileges of the Society until such arrears are paid; and if the subscription be not discharged before the 1st of February of the second year, the name of the Fellow thus in arrear shall be exhibited as a defaulter on a card suspended in the meeting-rooms; and if, at the next Anniversary Meeting, the amount still remain unpaid, the defaulter shall be announced to be no longer a Fellow of the Society, the reason for the same being at the same time assigned. No Fellow of the Society can withdraw his name from the Society's books, unless all arrears be paid; and no resignation will be deemed valid unless a written notice thereof be communicated to the Secretaries. No Fellow shall be entitled to vote at any Meeting of the Society until he shall have paid his subscription for the current year.

*Expulsion of Fellows.*

10. If any Fellow of the Society, or any Honorary Member, shall so demean himself that it would be for the dishonour of the Society that he longer continue to be a Fellow or Member thereof, the Council shall take the matter into consideration; and if the majority of the Members of the Council present at some Meeting (of which and of the matter in hand such Fellow or Member, and every Member of the Council, shall have due notice) shall decide by ballot to recommend that such Fellow or Member be expelled from the Society, the President shall at the next Ordinary Meeting announce to the Society the recommendation of the Council, and at the following Meeting the question shall be decided by ballot, and if at least three-fourths of the number voting are in favour of the expulsion, the President shall forthwith cancel the name in the Fellowship-book, and shall say,—

“By the authority and in the name  
“of the Statistical Society, I do declare  
“that A. B. (naming him) is no longer  
“a Fellow (or Honorary Member)  
“thereof.”

\* Cheques should be made payable to “The Statistical Society,” and crossed “Messrs. Drummond and Co.”



And such Fellow or Honorary Member, shall thereupon cease to be of the Society.

### *Trustees.*

11. The property of the Society shall be vested in *three Trustees*, chosen by the Fellows. The Trustees are eligible to any other offices in the Society.

### *President, Council, and Officers.*

12. The Council shall, independent of the Honorary Vice-Presidents, consist of thirty-one Members, of whom one shall be the President, and four be nominated Vice-Presidents. The Council shall be elected as hereafter provided. Any five of the Council shall be a quorum. From the Council shall be chosen a *Treasurer*, *three Secretaries*, and a *Foreign Secretary*, who may be one of the Secretaries. Six Fellows, at least, who were not of the Council of the previous year, shall be annually elected.

### *Election of President and Officers.*

13. The President shall be chosen yearly by the Fellows. The same person shall not be eligible more than two years in succession.

The former Presidents who are continuing Fellows of the Society shall be Honorary Vice-Presidents; four Vice-Presidents shall be yearly chosen from the Council by the President.

Any Honorary Vice-President may take part in the deliberations of the Council on expressing a wish to that effect: and when attending the Meetings of the Council, shall exercise all the rights and powers of a Member of the Council.

The Treasurer and Secretaries shall be chosen yearly by the Fellows from the Council.

### *Election of Council.*

14. The Council shall, previously to the Anniversary Meeting, nominate, by ballot, the *Fellows whom they recommend* to be the next President and Council of the Society. They shall also recommend for election a Treasurer and Secretaries (in accordance with Rule 12). Notice shall be sent to every Fellow whose residence is known to be within the limits of the metropolitan post, at least a fortnight before the

Anniversary Meeting, of the names of Fellows recommended by the Council.

### *Extraordinary Vacancies.*

15. On any *extraordinary vacancy* of the Office of the President, or other Officer of the Society, or in the Council, the Secretaries shall summon the Council with as little delay as possible and a majority of the Council, thereupon meeting in their usual place, shall, by ballot, and by a majority of those present, choose a new President, or other Officer of the Society, or Member of the Council, to be so until the next Anniversary Meeting.

### *Committees.*

16. The Council shall have power to appoint *Committees of Fellows* and also an Executive Committee of their own body. The Committees shall report their proceedings to the Council. No report shall be communicated to the Society which is not approved by the Council.

### *Meetings Ordinary and Anniversary.*

17. The *Ordinary Meetings* of the Society shall be monthly, or oftener, during the Session, which shall be from the 1st of November to the 1st of July, both inclusive, on such days and at such hours as the Council shall declare. The *Anniversary Meeting* shall be held on such day in June of each year as shall be appointed by the Council for the time being.

### *Business of Ordinary Meetings.*

18. The business of the *Ordinary Meetings* shall be to admit Fellows, to read and hear reports, letters, and papers on subjects interesting to the Society. Nothing relating to the rules or management of the Society shall be discussed at the Ordinary Meetings, except that the *Auditors' Report* shall be received at the Ordinary Meeting in *February*, and that the Minutes of the Anniversary Meeting, and of every Special General Meeting, shall be confirmed at the next Ordinary Meeting after the day of such Anniversary or Special General Meeting. *Strangers* may be introduced to the Ordinary

Meetings, by any Fellow, with the leave of the President, Vice-President, or other Fellow presiding at the Meeting.

### *Business of Anniversary Meeting.*

19. The business of the *Anniversary Meeting* shall be to elect the Officers of the Society, and to discuss questions on its rules and management. No Fellows or Honorary Members shall be proposed or admitted at the Anniversary Meeting. No Fellow shall moot any question on the rules or management of the Society at the Anniversary Meeting, unless after *three weeks' notice* thereof given to the Council, but amendments to any motion may be brought forward without notice, so that they relate to the same subject of motion. The Council shall give fourteen days' notice to every Fellow of all questions of which such notice shall have been given to them.

### *Special General Meetings.*

20. The Council may, at any time, call a *Special General Meeting* of the Society when it appears to them necessary. Any ten Fellows may require a Special General Meeting to be called, by notice in writing signed by them, delivered to one of the Secretaries at an Ordinary Meeting, specifying the questions to be moved. The Council shall, within one week of such notice, appoint a day for such Special General Meeting, and shall give one week's notice of every Special General Meeting, and of the questions to be moved, to every Fellow within the limits of the metropolitan post, whose residence is known. No business shall be brought forward at any Special General Meeting other than that specified in the notice for the same.

### *Auditors.*

21. At the *first Ordinary Meeting* of each year, the Fellows shall choose two *Auditors*, not of the Council, who, with one of the Council, chosen by the Council, shall audit the Treasurer's accounts, and report thereon to the Society, which report shall be presented at the Ordinary Meeting in February. The Auditors shall be empowered to examine into the particulars of all expenditure of the funds of the Society

where they shall see occasion, and may report their opinion upon any part of it.

### *Duties of the President.*

22. The *President* shall preside at all Meetings of the Society, Council, and Committees, which he shall attend, and in case of an equality of votes, shall have a second or casting vote. He shall sign all diplomas of admission of Honorary Members. He shall admit and expel Fellows and Honorary Members, according to the rules of the Society.

### *Duties of the Treasurer.*

23. The *Treasurer* shall receive all moneys due to, and pay all moneys due from, the Society, and shall keep an account of his receipts and payments. No sum exceeding Ten Pounds shall be paid but by order of the Council, excepting always any lawful demand for rates or taxes. He shall invest the moneys of the Society in such manner as the Council shall from time to time direct.

### *Duties of the Secretaries.*

24. The *Secretaries* shall, under the control of the Council, conduct the correspondence of the Society; they or one of them shall attend all Meetings of the Society and Council, and shall have the care of duly recording the Minutes of the Proceedings. They shall issue the requisite notices, and read such papers to the Society as the Council may direct.

### *Powers of the Vice-Presidents.*

25. A *Vice-President*, whether Honorary or nominated, in the chair, shall act with the power of the President, in presiding and voting at any Meeting of the Society or Council, and in admitting Fellows; but no Vice-President shall be empowered to sign diplomas of admission of Honorary Members, or to expel Fellows. In the absence of the President and Vice-Presidents, any Fellow of the Society may be called upon, by the Fellows then present, to preside at an Ordinary Meeting. The Fellow so presiding may admit Fellows, but shall not be empowered to act otherwise as resident, or Vice-President.

*Powers of the Council.*

26. The Council shall have control over the papers and funds of the Society, and may, as they shall see fit, direct the publication of papers and the expenditure of the funds, so, that they shall not at any time contract engagements on the part of the Society beyond the amount of the balance that would be at that time in the Treasurer's hands, if all pre-existing debts and liabilities had been satisfied.

27. The Council shall be empowered at any time to frame *Regulations* not inconsistent with these rules, which shall be, and remain in force until the next Anniversary Meeting at which they shall be either affirmed or annulled; but no Council shall have power to renew Regulations which have once

been disapproved at an Anniversary Meeting.

28. No Dividend, Gift, Division, or Bonus in money shall be made by the Society, unto or between any of the Fellows or Members, except as herein-after provided.

29. The Council shall publish a Journal of the Transactions of the Society, and such other Statistical Publications, as they may determine upon, and may from time to time pay such sums to Editors and their assistants, whether Fellows of the Society or not, as may be deemed advisable.

30. All communications to the Society are the property of the Society, unless the Council allow the right of property to be specially reserved by the Contributors.

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## REGULATIONS OF THE LIBRARY.

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1. The Library is open daily from 10 a.m. till 5 p.m., except on Saturdays, when it closes at 2 p.m.; and it is entirely closed during the month of September.

2. Members of the Society are permitted to take out Books on making personal application, or by letter addressed to the Librarian.

3. Members are not to have more than two works at a time, nor keep any books longer than a month.

4. Scientific Journals and Periodicals are not circulated until the volumes are completed and bound.

5. Cyclopædias and works of reference are not circulated.

6. Any Member damaging a book, either replaces the work, or pays a fine equivalent to its value.

7. Books taken from the shelves for reference, are *not* to be replaced, but must be laid on the Library table.

8. The Secretary shall report to the Council any infringement of these regulations.

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## DONORS TO THE LIBRARY.

DURING THE YEAR 1880.

*Foreign Countries.*

Argentine Confederation.	Italy.	<i>The States of—</i>
Austria and Hungary	Japan.	Indiana.
Bavaria.	Netherlands, The.	Iowa.
Belgium.	Prussia.	Kansas.
China.	Roumania.	Massachusetts.
Denmark.	Russia.	Michigan.
Egypt.	Saxony.	New York.
France.	Sweden and Norway.	Ohio.
Germany.	The United States of	Pennsylvania.
Greece.	America.	Rhode Island.
	Uruguay.	Wisconsin.

*Indian, Colonial, and other Possessions.*

Bengal.	Jamaica.	Queensland.
Canada.	Mauritius.	South Australia.
Cape of Good Hope.	New South Wales.	Tasmania.
India (British).	New Zealand.	Victoria.

*Public Departments.*

The Admiralty.	The Naval Medical Department.
„ Army Medical Department.	„ Museum of Practical Geology.
„ Board of Trade.	„ Police, Dublin Metropolitan.
„ Convict Prisons, Directors of.	„ Police, London Metropolitan.
„ Factories, Inspectors of.	„ Post Office.
„ Fire Brigade, Metropolitan.	„ Registrar-General of England.
„ Friendly Societies, Registrar of.	„ „ „ Ireland.
„ Home Office	„ „ „ Scotland.
„ India Office.	„ Tithe Commissioners.
„ Local Government Board.	„ Warden of Standards.

Abdur Rahman, Syud, Esq.	American Philosophical Society of Philadelphia.
Academy of Natural Sciences, Philadelphia, U. S. A.	American Statistical Association, Boston, Mass.
Actuaries, The Institute of, London.	Amici, F. Bey, Egypt.
Adelaide Philosophical Society.	Annand, W., Esq., London.
Agriculture, Central Chamber of.	Ansell, C., Esq., junr.
Allen, Messrs. W. H. & Co., London.	Arts, Society of.
American Academy of Arts and Sciences, Boston.	Asiatic Society of Bengal.
American Geographical Society of New York.	„ „ Japan.
	Astor Library, New York U. S. A.



*During the Year 1880—Continued.*

- Athenæum, The Editor of.  
 Atkinson, E., Esq., Boston, U.S.A.  
 Austrian Central Statistical Commission.  
 Austrian Consul-General, London.  
 Bain, A. Bryce, Esq.  
 Baker, Dr. H. B., Lansing, U.S.A.  
 Bankers' Institute, London.  
 „ Magazine, London.  
 „ „ New York.  
 Barry, Dr. F. W., Cyprus.  
 Bavaria, Royal Bureau of Statistics.  
 Beddoe, Dr. J., F.R.S., Bristol.  
 Behm, Herr G., Berlin.  
 Belgium, Academy, Royal.  
 „ Minister of Interior.  
 Berg, Dr. F. T., Stockholm.  
 Berlin, Statistical Bureau of.  
 Bevan, G. P., Esq., London.  
 Bikélas, D., Esq., Athens.  
 Birch, J. W., Esq., London.  
 Birmingham Free Public Libraries.  
 Blackley, Rev. W. L., London.  
 Boccardo, Professor G., Italy.  
 Boddy, E. M., Esq., F.R.C.S., F.S.S.  
 Böckh, Herr, Berlin.  
 Bodio, Professor Luigi, Rome.  
 Böhmert, Dr. V., Dresden.  
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